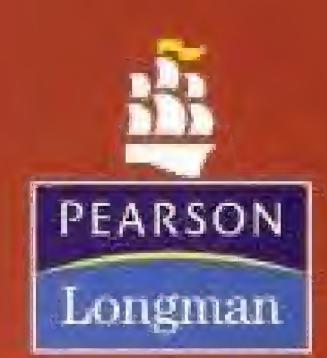
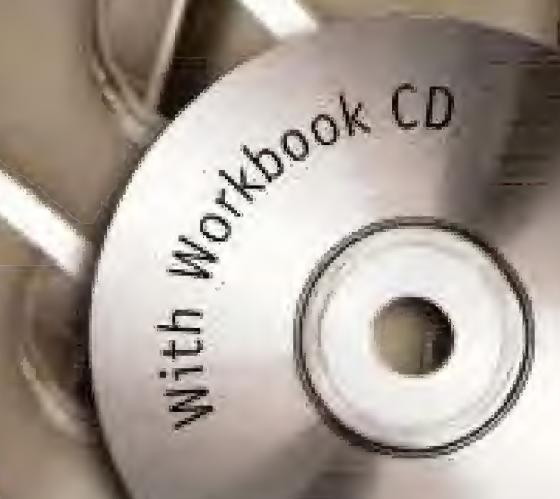
Flexi-Course Book

# Technical Fraglish

Students' Book and Workbook



David Bonamy Christopher Jacques



# Check-up



Start here

Listen and complete the dialogues with the words in the box.

are I'm is name's am

- Hello. I (1) am Hans Beck.
  - Hi. My name (2) Pedro Lopez.
  - Pleased to meet you.
- Excuse me. (3) \_\_\_\_\_\_ you Mr Rossi?
  - O Yes, lam.
  - Pleased to meet you, Mr Rossi. (4) \_\_\_\_\_\_ Danielle Martin.
  - Nice to meet you, Danielle.
- Hi. My (5) \_\_\_\_\_\_ Jamal.
  - O Hello, Jamal. (6) \_\_\_\_\_\_ Borys.
  - Good to meet you, Borys. (7) \_\_\_\_\_\_\_ you from Russia?
  - No. (8) \_\_\_\_\_ from Poland.
- Work in pairs. Practise the dialogue in I with your partner. Talk about yourself.

Complete the form about yourself. Use block capitals. Writing

Name	Country	Occupation

Speaking

- Work in pairs. Ask and answer questions.
  - A: Hello. What's your name?
- B: I'm Kato.
- Where are you from?
- B: I'm from Japan.

- What do you do?
- B: I'm a builder/an electrician/a student.

What do you do? = What's your job/occupation?

lam → Jim

My name is > My name's

What is > What's

2003 Play this game. Listen. Only follow the instructions if the speaker Listening says Please.

### Match the opposites. Vocabulary

pick up raise read say stand start lower put down sit stop write listen

Example:  $stand \neq sit$ 

### Try this quiz. Choose the correct answer.



- The TV is
- The doors are
- Turn
- Go
- Drive
- The hammer is
- a) on.
- a) closed.
- a) left.
- a) in.
- a) up. a) in the box.
- b) off.
- b) open.
- b) right.
- b) out.
- b) down. b) on the box.
- c) under the box.
- Match the pictures with the words in the box.

adapter antenna bolts cable chisel nuts plug washers screws screwdriver spanner



### 2 Letters and numbers

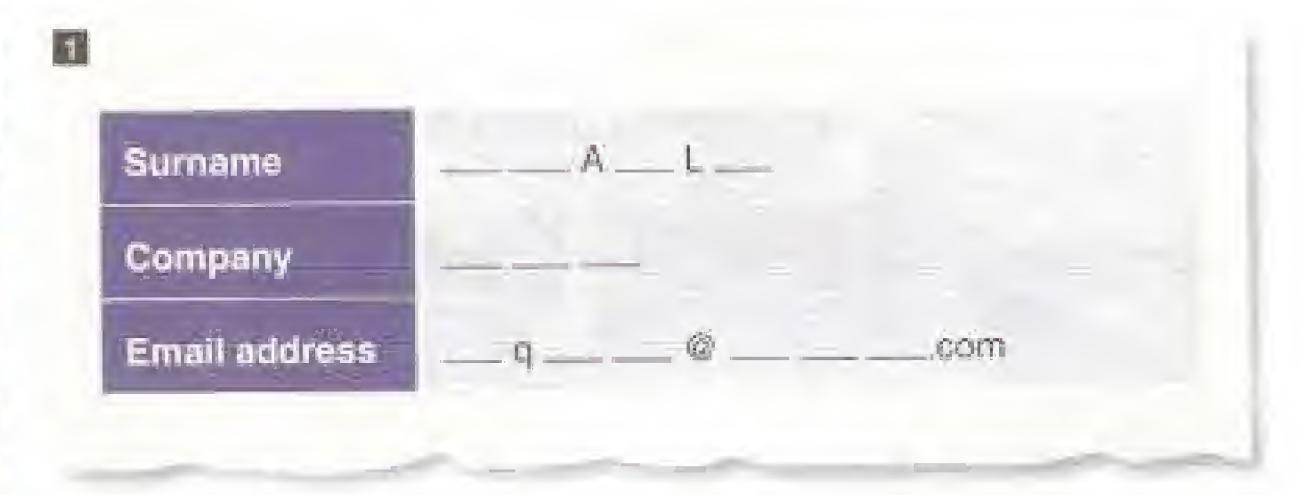
Start here 1 Listen and correct the four mistakes in the business card.

Listening 2 Listen and complete the forms.









 Emergency service
 FIRE

 Address
 \_\_\_\_\_ E \_\_\_ S \_\_\_ Street

 Posicode
 \_\_\_\_\_ 4 \_\_\_ N \_\_\_

 Surname
 \_\_\_\_ AT \_\_\_ E \_\_\_ S

3	Problems with Phone CUSTON	your product? MER SERVICE HELPLINE
	Full name	PIETER U
	Postcode	2
	House number	

Speaking 3 Dictate and spell out details from your business card to your partner.

4 Put all the letters of the alphabet into the correct column.

three	eight	five	ten	two	EXCEPTIONS
<u>F</u>	A4_				

5 Work in groups. Have a spelling competition.

Team A: Make a list of ten countries. Check the spelling. Then ask Team B to spell them correctly.

Team B: Make a list of ten capital cities. Check the spelling. Then ask Team A to spell them correctly.

Example: How do you spell EGYPT? How do you spell TOKYO?

Listening 6 Listen and match the pictures with the announcements.











F	المانة س	
4		



7	Listen	again and	complete	the sentences	with	numbers	and	letters
		1_			25 21 10 th. m. m.	rille alle "Barylle alle alle elle demoty "Sancie Me Clarift"	Brooks alle site Thereis	the State of the State of the State of

- l Counter number \_\_\_\_\_\_, please.
- 2 This is Radio \_\_\_\_\_ on \_\_\_\_ FM.
- 3 Please pay \_\_\_\_\_ pounds and \_\_\_\_\_ pence.
- 4 The \_\_\_\_\_\_ train to Oxford will depart from platform number \_\_\_\_.
- 5 Flight number \_\_\_\_\_ is boarding now. Please go to gate number \_\_\_\_.
- 6 To donate money to Live Aid, ring this number now: \_\_\_\_\_
- 7 Begin countdown now: \_\_\_\_\_\_
- Speaking 8 Play FIZZ BUZZ.
  - Count from 1 to 100 round the class.
  - Use Fizz for a number you can divide by 3. Example: 3, 6, 9, 12, ...
  - Use Buzz for a number you can divide by 5. Example: 5, 10, 15, 20, ...
  - Use Fizz Buzz for a number you can divide by both 5 and 3. Example: 15, 30, ....
  - If you make a mistake, you are OUT of the game.

Start like this: 1, 2, Fizz, 4, Buzz, Fizz, 7, 8, Fizz, Buzz, 11, Fizz, 13, 14 ...

Vocabulary 9 What do the following mean?

# km + g in kW kg L V A° rpm C km/h w gal m ft € W

12

Kg



Example: km = kilometre

Listening 10	07	Listen and write the numbers in the correct space	Ç.
--------------	----	---	----

III

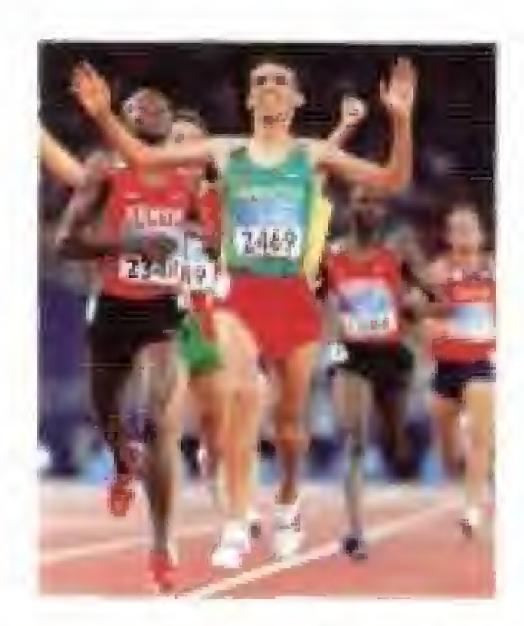
8

- 2 \_\_\_\_\_A 6 \_\_\_\_\_\_V 3 \_\_\_\_km 7 \_\_\_\_\_rpm 11 \_\_\_\_\_€

### 3 Dates and times

Start here

Listen to the sports results. Add the positions (2nd, 3nd and 5th) and complete the times in the blanks in the chart.



Athens Olympics 2004 Official Results Men's Finals: 1500 metres			
Position	Name	Country	Time
(1)	Silva	Portugal	3:34.68
4 <sup>m</sup>	Kiptanui	Kenya	(2) 3:
1=	El Guerrouj	Morocco	(3) 3:
(4)	Lagat	Kenya	3:34.30
6 <sup>in</sup>	East	Britain	(5) 3:
(6)	Hoshko	Ukraine	3:35.82

Speaking

2 Put the ordinal numbers  $I^{*'}$  to  $3I^{*'}$  into the chart. Read them out to your teacher.

- 3 Say the names of the months of the year.
- 4 Say the days of the week. Start with Monday.
- 5 Read out these airport codes.

FFIA = Frankfürt	WWW = Warsaw	DXB = Dubai	CAT - Caro
CDG = Paris	MAD = Madrid	FGO = Home	NHT = Tokyo
I, HR = Landon	BAH = Bahrain	JNB = Johannesburg	LOS = Legas

Give the days of the flights.

on Mondays = on Monday every w. Vi

Flight number	From	То	Depart	Arrive	Days
1 LH 306	FRA	WAW			1.4
2 AF 835	CDG	MAD			246
3 EK 971	LHR	BAH			1245
4 MS 740	DXB	CAL			1357
5 AZ 7788	FCQ	NAT			2356
6 SA 104	JNB	LOS			147

Example: I LH 306 departs from Frankfurt on Mondays and Thursdays.

Listening

7 Listen and write down the dates. Use dd/mm/yy.

Speaking

8 Write down some dates important to you. Then dictate them to your partner.

You dictate: The twenty-eighth of December two thousand and ten.

Your partner writes: 2010-12-28.

9 Complete the table. Read out your answers.

28° December 2010:

- in Europe: 28/12/10 (dd/mm/yy)
- in the USA: 12/28/10 (mm/dd/yy)
- in Japan: 10/12/28 (yy/mm/dd)
- ISO 8601: 2010-12-28 (yyyy-mm-dd)

write: 0; say: oh or zero.

24-hour clock	12-hour clock
07.50	(1) 7.50 am
17.30	5.30 pm
14.40	(4)
(6)	1.35 pm
05.55	(8)

24-hour clock	12-hour clock
(2)	6.30 am
15.15	(3)
(5)	4.45 pm
20.25	(7)
(9)	9.10 pm

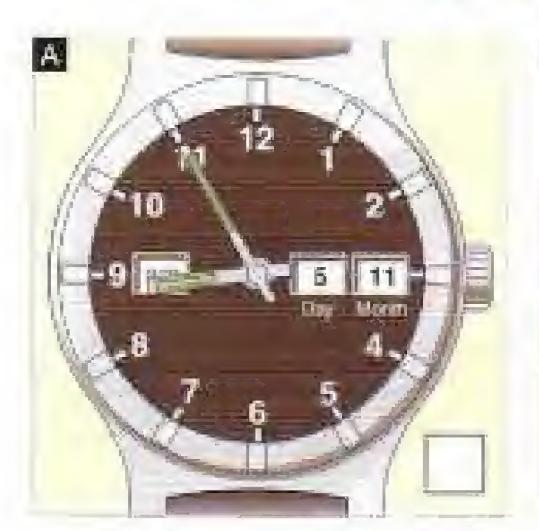
10 Read out these times.

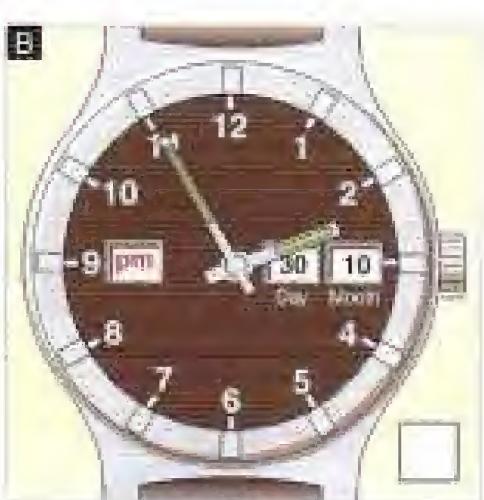
First, use the 24-hour clock. Then use the 12-hour clock.

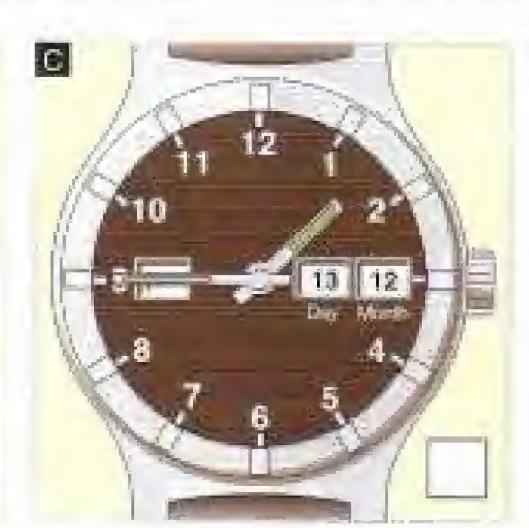
1) 05:15 2) 08:50 3) 11:14 4) 13:40 5) 15:18 6) 17:30

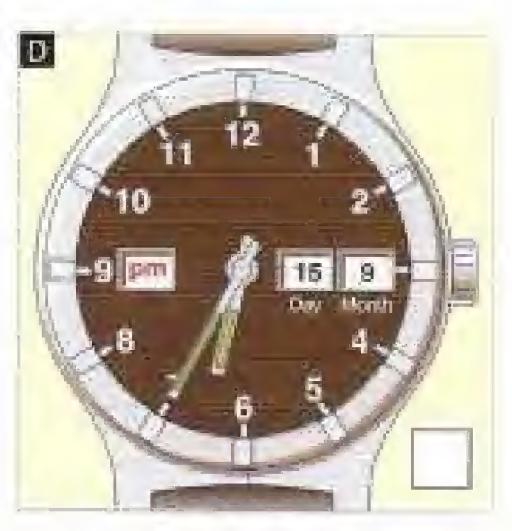
Listening

- Listen and add the times to the timetable in 6. Use the 24-hour clock.
- 12 Listen and write the correct number next to each watch.









- 13 Read out the times and dates on the watches in 12. Use the 12-hour clock.
- Social English
  - 14 Practise this conversation.
    Use different days and times.
    - A: When's the party?
    - B: It's on Friday.
    - A: Is that Friday the 24th?
    - B: Yes, that's right.
    - A: What time?
    - B: 7.30.
    - A: OK. See you then. Bye.
    - B: See you. Bye.



# Parts (1)

### 1 Naming

### Start here

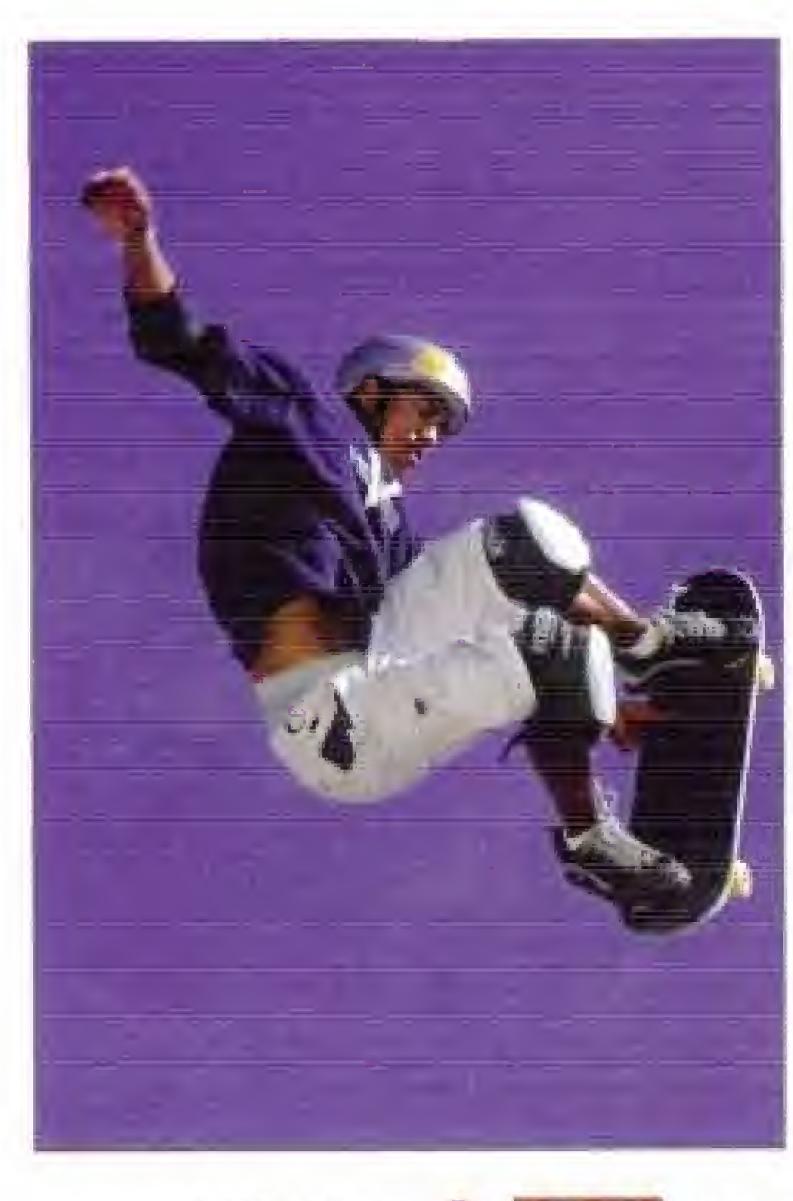
1 Listen and complete the table.

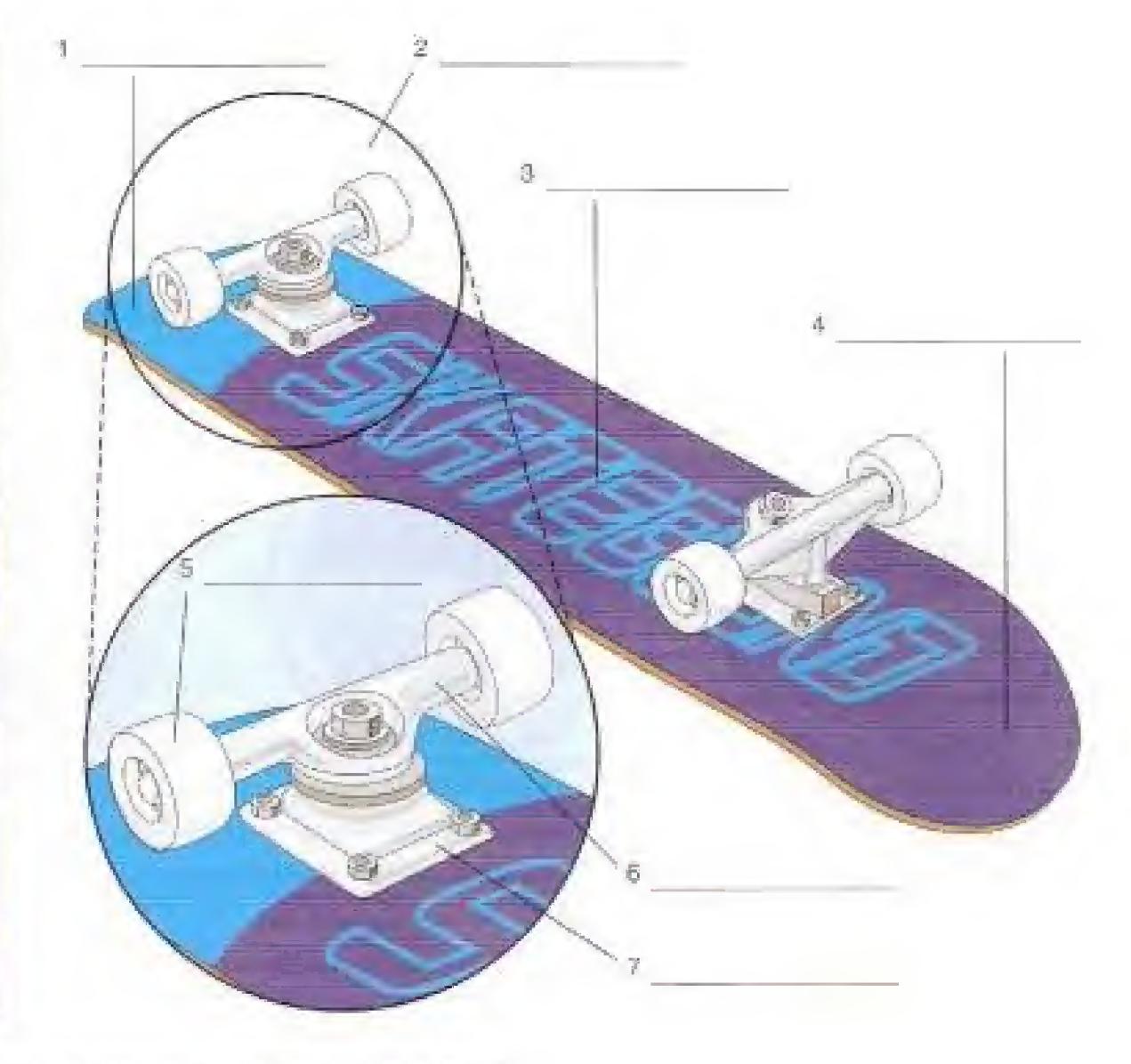
Skateboard record	Distance	Date (dd/mm/yy)	
1 High jump	metres	//	
2 Long Jump	metres		J.

### Vocabulary

2 Work in pairs. Label the diagram with the words in the box.

axle deck nose plate tail truck wheel





### Listening

- Listen and check your answers to 2.
- 4 Listen and complete the dialogue.
  - What's this
  - Olt's\_\_\_\_adeck.
  - What's \_\_\_\_\_ called in English?
  - O it's called \_\_\_\_\_\_ truck.

### Speaking

- Work in pairs. Ask and answer questions about all the parts on the diagram.
  - A: What's this called? (or What's this called in English?)
  - B: It's called a deck.

### Language

What's this called? Use this when you don't know the English word. What's this? Use this when you don't know what it is, even in your own language.

	's	this			14	's		3	deck.
What	is	that	called	2	11.	is	called	an	axle.
What	are	these	ijancu.	i	They	re are	and the state of t	deck	

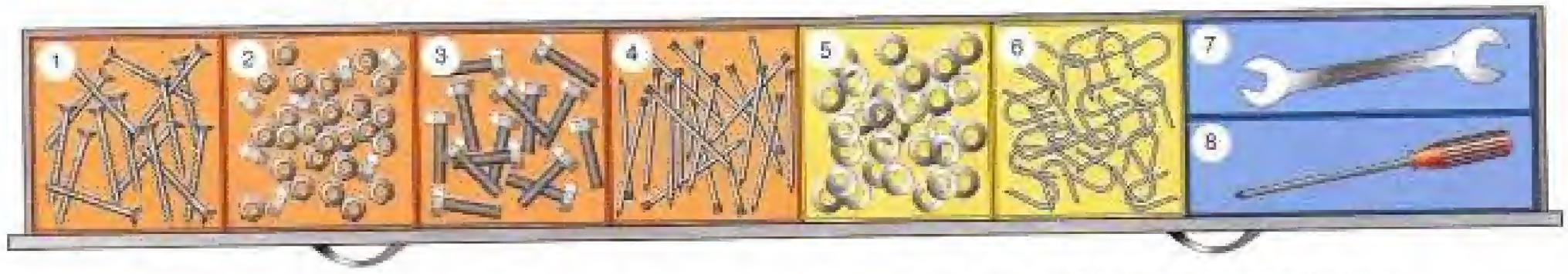
6 Complete the dialogues with the words in the box.

### Vocabulary

Listen and repeat.

nails ... bolts ... nuts ... spanner ... washers ... staples ... screws ... screwdriver

8 Match the words from 7 with the pictures.



Speaking

9 Work in pairs. Ask and answer questions about the tools and fixings.

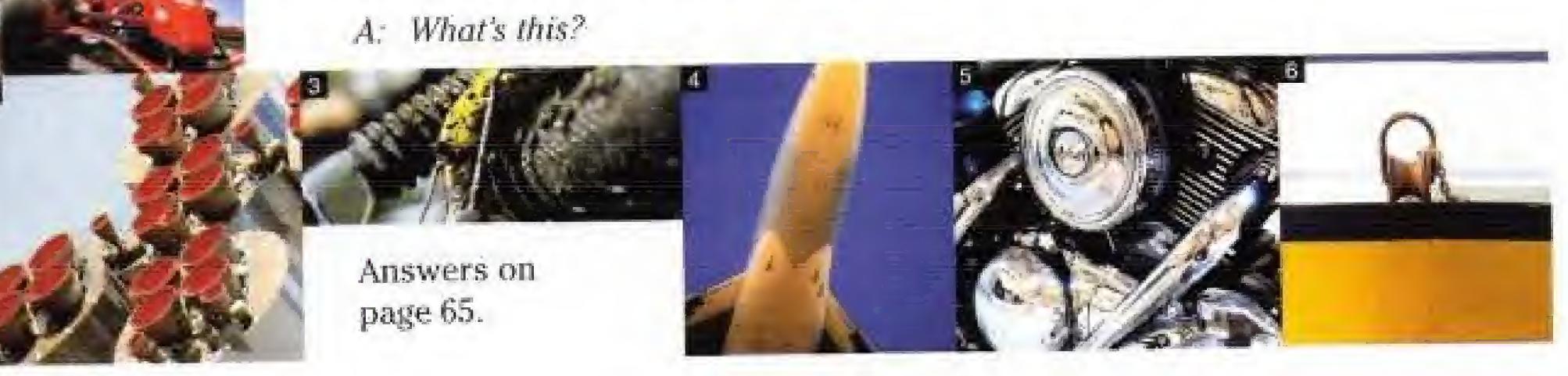
A: What are these called?

10 Point to things in the class or outside. Ask and answer questions.

What's this/that called? What are these/those called?

11 Work in small groups. What are these?

Clue: they're all vehicles on land, sea, in air and space.



### 2 Assembling

### Start here

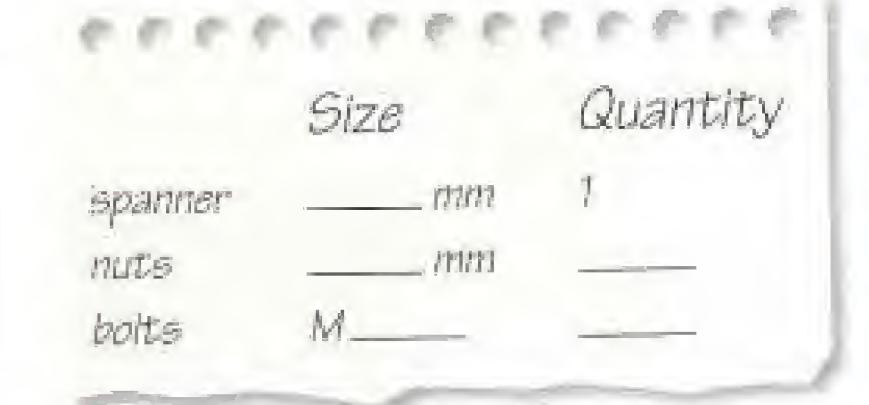
1 Work in pairs. You want to assemble a skateboard. What do you need? Choose items from page 11. exercise 7.

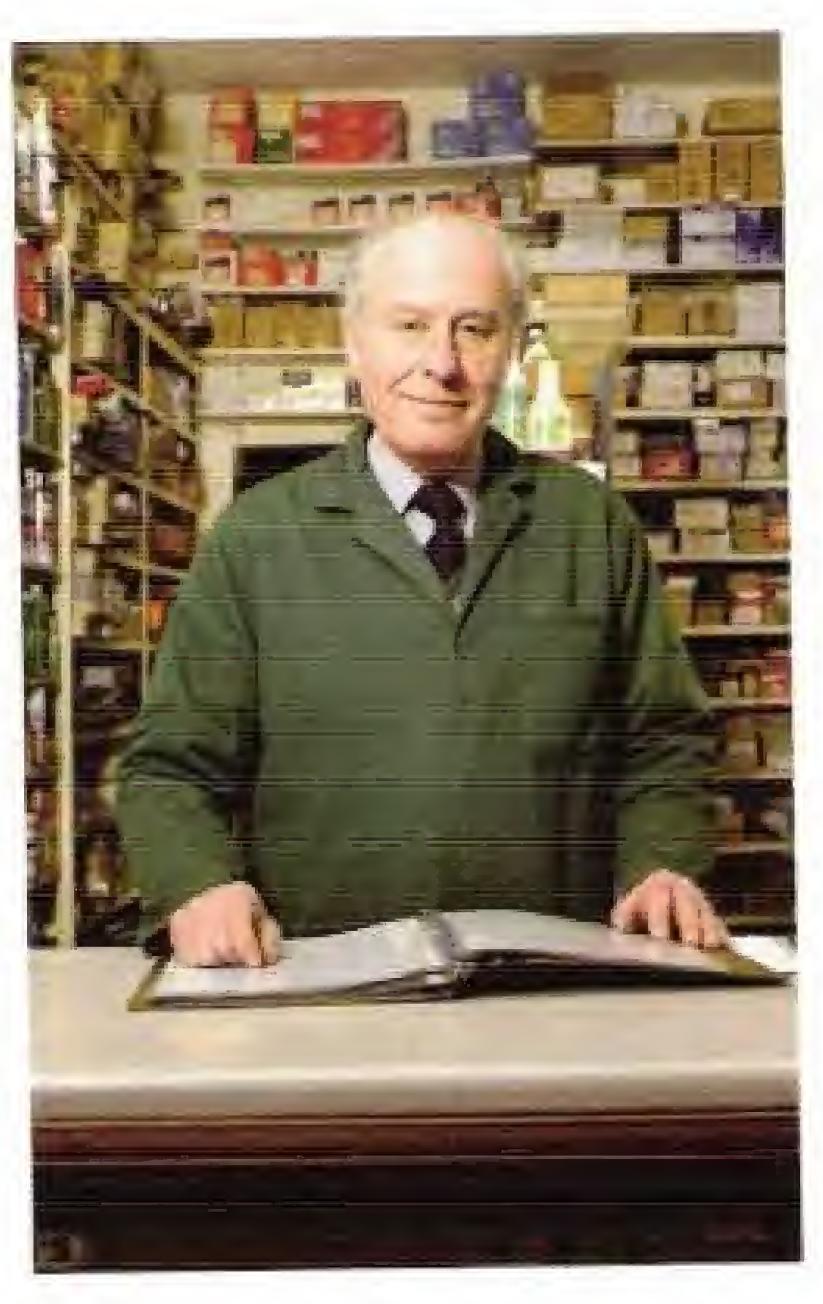
assemble (a skateboard) = fit the parts (of a skateboard) together

### Listening

2 Listen and complete the checklist.

write: I mm, say one millimetra or one millimetra or one millimetras or five millimetras or five millimetras or five millimetras the underlined syllable) size M5 = 5 mm





### Speaking

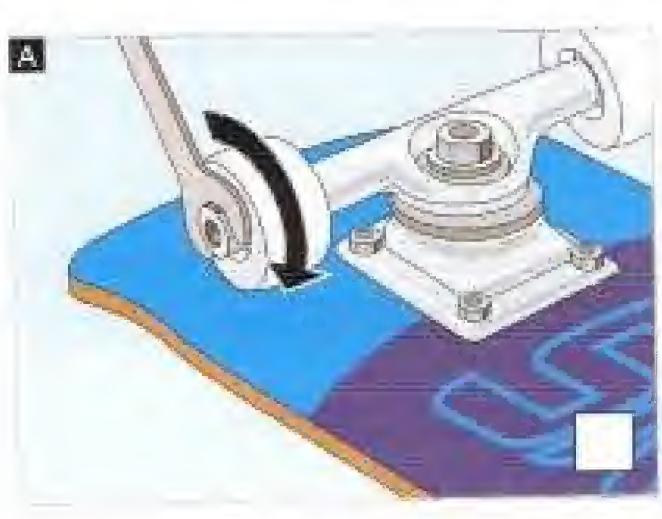
Work in pairs. Make dialogues with your partner.

bolts / 10 mm / 50 Example:

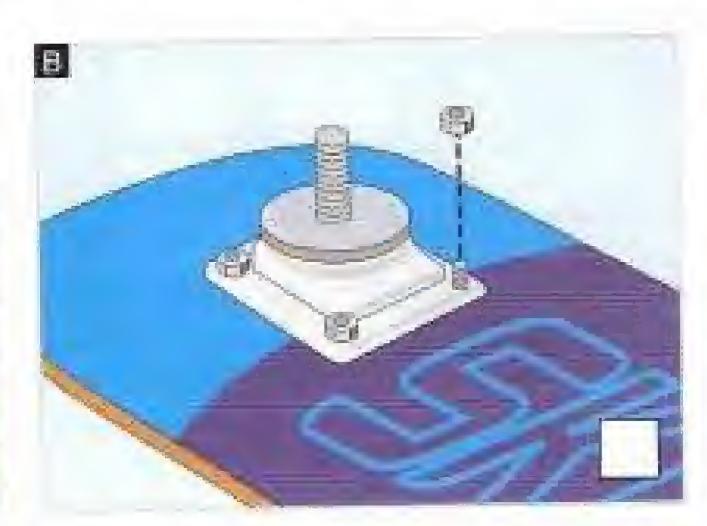
2 washers / M6 / 60
3 screws / 24 mm / 100
4 nuts / 36 mm / 75
5 bolts / M16 / 60
Customer: I need some bolts, please. What size?
Customer: 10 mm.
Shopkeeper: How many?

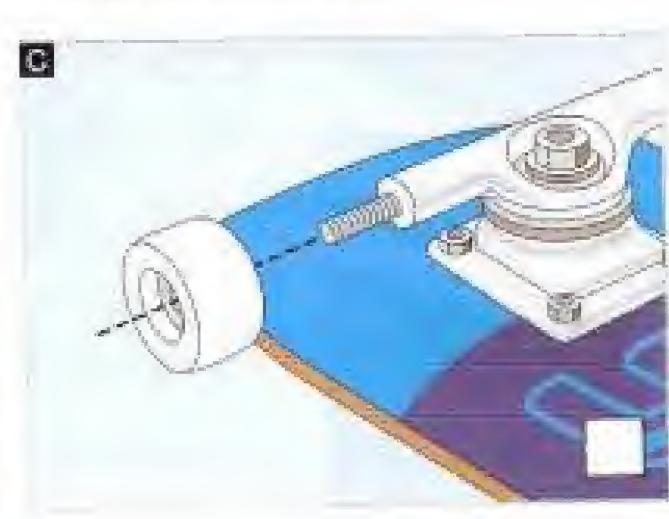
5 bolts / M16 / 60 Shopkeeper: How many? 6 nails / 30 mil / 80 Customer: Fifty, please.

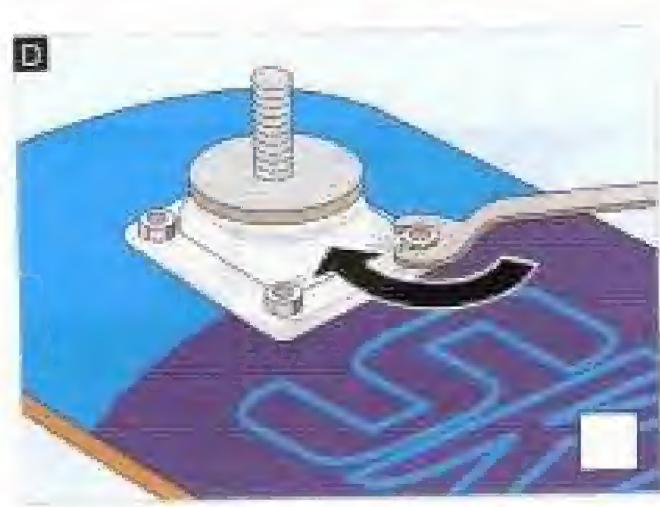
How do you assemble a skateboard? Put these diagrams in order.

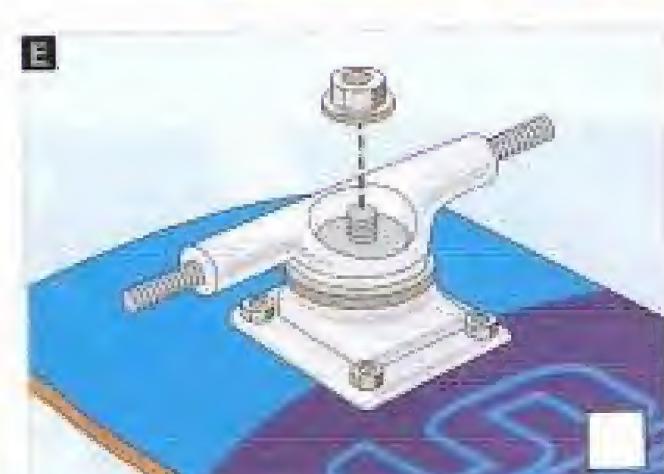


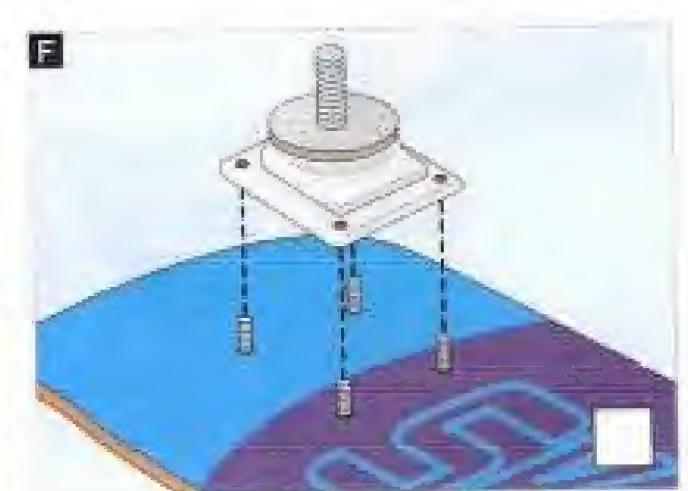
Task



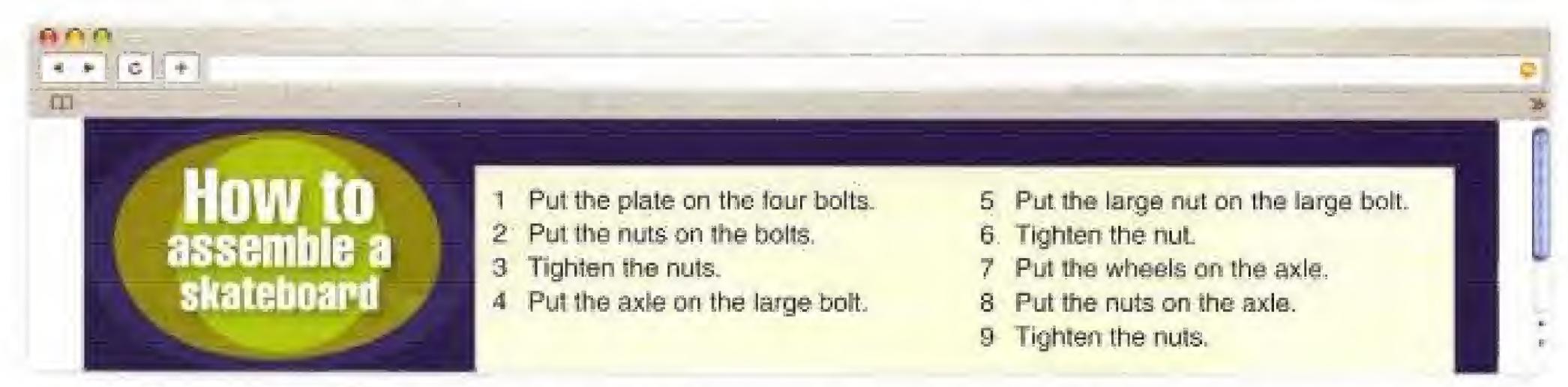








Read this instruction manual and check your answers to 4. Reading



Language Complete the table. Use the sentences from 5. Leave some spaces blank.

Verb (action)	Object (thing)	Location (place)
1 Put	the plate	on the four bolts.
2 Put		
3	the nuts.	
4 Put		
5 Put		
6		
7		
8		
9		

### Listen and repeat. Vocabulary

loosen ... pull ... push ... put ... take ... tighten

Complete the instructions. Use the words from 7.



- the hammer off the table.

  - 3 the lever.
- Complete the table.

Verb	Opposite		
put (on)	(1)	(off)	
tighten	(2)		
push	(3)		

- 5 the nut.
- 6 the nut.

### 3 Ordering

### Listening

1 Listen to this voice mail message and complete the notes.



2 Listen and correct the mistakes in these names and numbers.

write: 55, say: five five or double 5. write: 0, say: zero or oh.



### Speaking

- 3 Work in pairs. Choose words from this unit (e.g. screwdriver) and dictate them to your partner.
- 4 Work in pairs. Leave phone messages.

Student A. Turn to page 64.

### Student B:

1 Leave phone messages for Student A. Use the business cards below. Spell out the name of the person and the company.



Pepino Turi

Engineer

00 39 06 625 500

Example:

Hello. This is John West. That's W-E-S-T. Manager of Kesko. That's K-E-S-K-O. My phone number is 00 44 1224 867 4490. Please call me back.



Homet

Stefan Gross

Designer

00 49 711 845 8833

2 Change roles. Listen to Student A and make notes like this:

Call from John West, Manager Company, Kesko Phone number: 00 44 1224 867 4490 Please call him back.

### Task 5 Work in pairs. Order goods on the phone.

Student A. Turn to page 64.

### Student B:

You are a customer. You want to buy the items circled in red. Telephone Student A (the sales person) and order the items.



Item	Colou	if .		Size			Qua	intity	
Helmet	red	white	(blue)	large	(medium)	small.	1	-2	3
Deck	(red)	yellow	blue	(large)	medium	small	(1)	2	3
Pad	black	(brown)	green	large	(medium)	small	2	(4)	6

### Begin:

- A: Hello. I need to buy some things for my skateboard.
- B: OK. What do you need?
- A: I need a helmet.
- 2 Change roles. You are the sales person. Ask Student A (the customer) what they want to buy.
- 3 When you have both finished, you can circle new items and phone up to order them.

### Social English

**ISEFUL PHRASES** 

colour do you need?

s your phone

well that.

ber?

mat size/How many/What

st's your name? Please

- 6 Listen and then introduce yourself and your partner to other students.
  - A: I'm Luis. I'm a student. And this is Paulo. He's a student, too.
  - B: Hello, Luis. Hello, Paulo. Nice to meet you.



15

# Review Unit A

Re	write these statements as questions.	
1	The machine's on.	
	is the machine on?	
1	The switches are off.	
3	Roberto's in London.	
4	They're IT technicians.	
5	He's a student.	
6	She's Polish.	
Ar	swer the questions in the negative. The	n make a positive statement.
1	Is it Sunday today? (Monday)	
	No, it isn't Sunday today. It's Monday.	
	Is the power on? (off)	
3	Are you Peter? (John)	
4	Are they from Berlin? (Bonn)	
5	Is she a technician? (engineer)	
6	ls he an electrician? (builder)	
Re	write these sentences using contraction	as where possible.
1	My name is Jamal and I am from Jorda	D.
	My name's Jamal and I'm from Jordan.	
2	This is Jean. He is French, but he is no	t from Paris.
3	This is Frieda. She is from Rome, but s	he is not Italian.
4	Look at the switch. It is down, but the	power is not on.
5	These are the wrong items. They are n	ot bolts. They are screws.
6	What is this tool called? What are thes	e called?

4 Complete the questions and answers with the words in the box. You can use the words more than once.

am are do does is

1	Where are you	from?	a)	No, my name	Jan.
	What	The state of the s	(d)	I an	IT technician.
3	Excuse me	you lan?	(c)	His name	Peter.
4	What	he do?	(b)	No. they	from Germany
5	What	his name?	(e)	Lam from Der	nmark.
6	Excuse me	they	f)	He	a marine
	from France?			engineer	

- 5 Match the questions with the answers in 4.
- 6 Work in pairs. Practise the questions and answers in 4. Use contractions.
- 7 Look at the pictures in Units 1 and 2. Work in pairs. Make questions and answers about the pictures.

What's this/that called? What are these/those called? It's/They're called ... .

8 Look at this drawer for 15 seconds. Then close the book and list everything in the drawer.

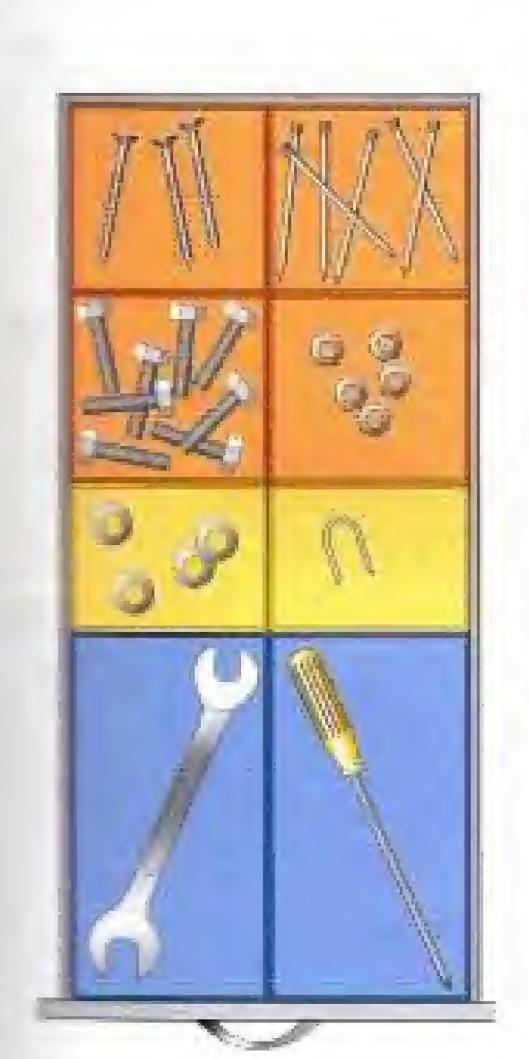
Begin: 3 screws, ...

9 Draw a line from each word to its opposite.

# on stand large in stop off left small up sit right open out closed tighten loosen down

10 Choose the correct way to read out these numbers.

1	Room 101 a) one hundred and one b) one oh one	F	10	1
2	Height: 8850 metres a) eight thousand eight hundred and fifty b) double eight five oh		À	era
3	Tel: 74 77 88  a) seventy-four seventy-seven eighty-eight b) seven four double seven double eight	74	77	88
4.	Voltage: 109,845 V a) One hundred and nine point eight four five b) One hundred and nine thousand eight hundred and forty-five		4	



Work in pairs. Solve this puzzle. Write a sentence of eight words.

pea	are.		see	tea	eye			why	oh	you	are			
P		A				S	E							
				eye						are	why			why
E	N	G	<u>L</u>	1	S	1-1	E	V	E			D	Α	
	eye	lea					are e	ye						
W			H		Д	F		E		N I	D			

Complete the dialogue with the question words in the box.

How What What's colour? Black or silver? do you need? Black, please. Some bolts, please. \_\_\_\_\_your name? \_\_\_\_ many do you need? 5 John Martins. Forty, please. 6 • \_\_\_\_\_your phone number? size? O It's 00 30 438 9981. O 10 mm, please.

13 Say the dates and times. Use the 12-hour clock.

Example: I Wednesday, the tenth of April 2007 at 1.40 pm.

14 Complete the number sequences with your partner.

a) 1, 2, 3, 5, 7, \_\_\_\_\_\_\_ 

Write these numbers and units in words.

5 km five kilometres

250 kg \_\_\_\_\_

€1015\_\_\_\_\_

110 V\_ O°C

13 mm

Look at the pictures on page 65 for 15 seconds. Don't look again. Are these true (T) or false (F)?

The window is open. T/F

The TV is on. T/F

The white switch is up. T/F

The black switch is down. T/F

The circle is blue. T/F

The triangle is yellow. T/F

The large helmet is green. T/F

The small helmet is red. T/F

The cable is under the table. T/F

The car goes left. T/F 10

The letter is B. T/F 1-1

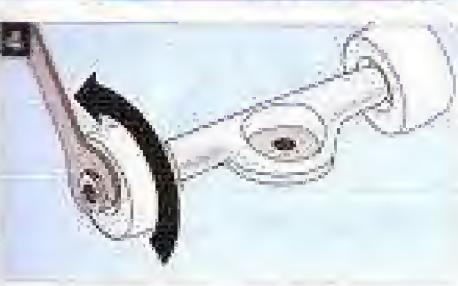
The number is 14. T/F 12.

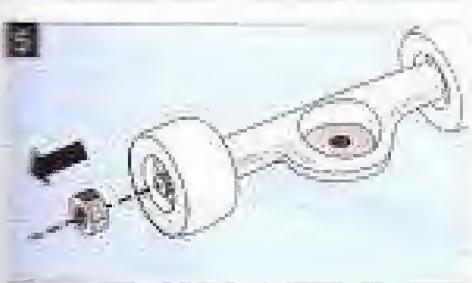
18

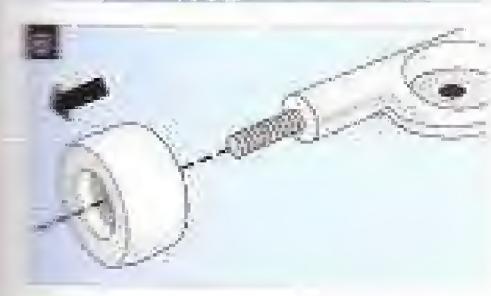












17	Complete the instructions for these pictures. Use SOME of the wor	ds in
	the box.	

loosen off on put take tighten use

How to take the truck off the skateboard

Step 1: (a) \_\_\_\_\_\_ the large nut. (b) \_\_\_\_\_ the large spanner.

Step 2: (c) \_\_\_\_\_\_ the large nut (d) \_\_\_\_\_ the bolt.

Step 3: (e) \_\_\_\_\_\_ the truck (f) \_\_\_\_\_ the bolts.

How to take the wheels off the truck

Step 4: (g) \_\_\_\_\_ the small nuts. (h) \_\_\_\_\_ the small spanner.

Step 5: (i) \_\_\_\_\_\_ the small nuts (j) \_\_\_\_\_ the axle.

Step 6: (k) \_\_\_\_\_ the wheels (l) \_\_\_\_ the axle.

### 18 Put the words in the instructions in the correct order.

- I screws the tighten

  Tighten the screws.
- 2 the large hammer use
- 3 take off the car the old wheel
- 4 the new wheel put on the car
- 5 into the wood hammer the nails
- 6 through the holes the bolts push

**Project 19** Find the meaning of the words *plate*, *truck* and *axle* for different technical fields, and write the results in a table.



# 3

# Parts (2)

### 1 Tools

Start here

21

Listen and complete the TV advert.

### This is the new Multi Tooll

Use it at home. Use it on the building site. Use it when you travel.

It has a (1) \_\_\_\_\_ and a pair of (2) \_\_\_\_\_ It also has a (3) \_\_\_\_\_, a (4) \_\_\_\_ and a

(5)

The Multi Tool has everything you need! Only £29.99. Buy one now!



### Listening

2 Listen and complete the dialogue with the words in the box.

do does doesn't have

pilers and scissors are always plural say: I need <u>some</u> scissors, or

I need a pair of scissors.

- Do you (1) \_\_\_\_\_\_ a Multi Tool?
- O Yes, 1(2) \_\_\_\_\_\_
- Does the Multi Tool (3) \_\_\_\_\_ a hammer?
- O Yes, it (4) \_\_\_\_\_\_
- Does it (5) \_\_\_\_\_ a pair of scissors?
- O No, it (6)\_\_\_\_\_\_
- 3 Listen and repeat.

a pair of pliers ... a pair of scissors ... a blade ... a can opener ... a bottle opener ... a screwdriver

### Language

Do	you		have	a Multi Tool?	Yes, I do. / No, I don't.	
Does	the Multi Tool			a hammer?	Yes, it does. / No, it doesn't.	
	The Multi Tool	doesn't does not	have	a hammer.		

4 Work in pairs. Practise the dialogue.

A: Does Pedro have a Multi Tool?

B: Yes, he does.

Bob / you / we he / I / we

B: Yes, he does.

A: Does it have a ruler?

chisel / saw / spanner / screwdriver

B: No, it doesn't. yes / no

A: Does it have a pair of pliers? hammer / scissors / opener / blade

B: Yes, it does. no / yes

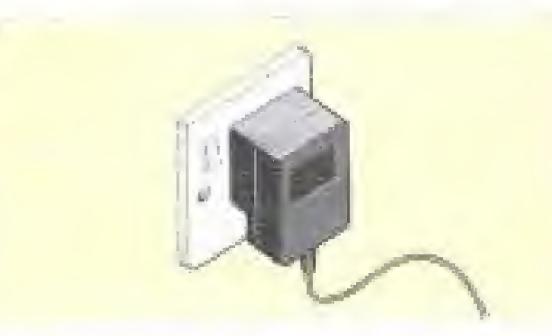
5 Work in pairs. Design a Multi Tool for your work.

### 2 Functions

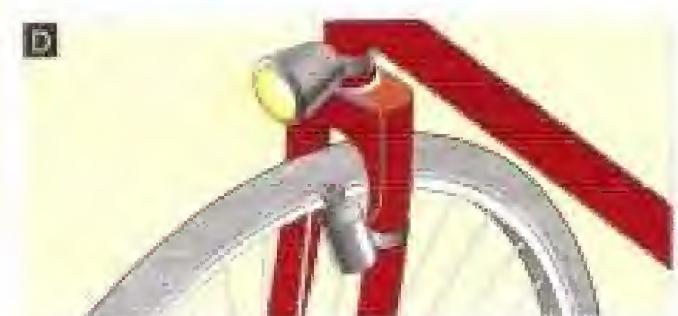
Start here

1 Match the words with the pictures.









Electrical power sources

- 1 mains electricity \* AC adapter
- 2 solar power
- 3 dynamo
- 4 batteries

Reading

2 Label the photos of the emergency radio below with the words in the box.

alarm antenna clock compass handle thermometer torch

3 Listen and repeat.

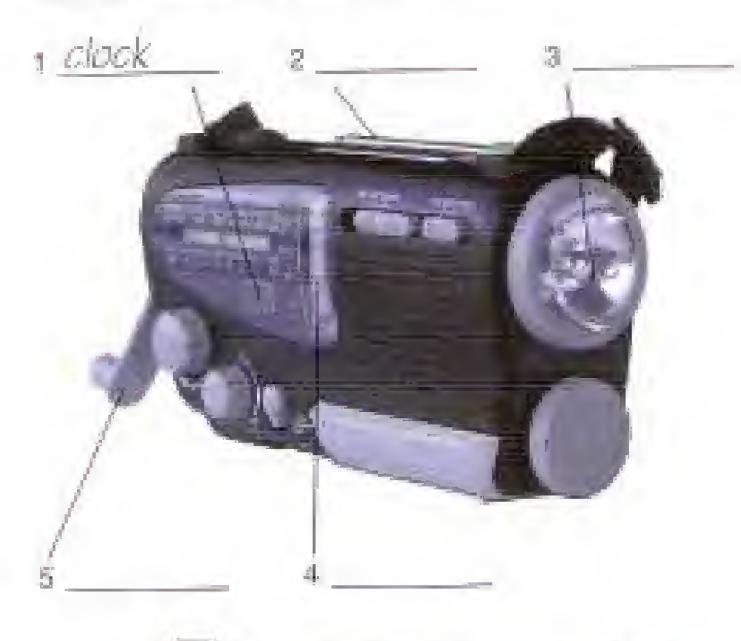
handle ... thermometer ... torch ... alarm ... clock ... compass ... antenna

4 Read the description and check your labels.



Internal - external

# Dynamo Solar Radio





### Key features: This equipment has

- a radio
- a thermometer
- a compass
- a torch
- a clock
- an alarm

### Power sources

It uses electricity from four sources of power:

- an AC adapter. This connects the mains electricity supply to the radio.
- 3 external AA batteries.
- a solar panel. This changes the Sun's energy into electricity and charges an internal battery.
- a dynamo generator. The handle turns the dynamo.
  The dynamo produces electricity and charges the internal battery.
- 5 Explain the function of these parts.
  - 1 the AC adapter
- 3 the dynamo
- 2 the handle
- 4 the solar panel

6 Match the parts with their functions.

### Part Function thermometershine a light compass make electricity torch turn the dynamo clock tell the time alarm find North solar panel receive radio signals handle. measure temperature antenna make a loud noise

7 Make sentences from the parts and functions in 6.

Example: 1 The thermometer measures temperature.

### Language

Speaking

	İİ		measure	S	temperature.	
Does	lt		measure		temperature?	Yes, it does. / No, it doesn't:
	It	does not	measure		speed.	

8 Work in pairs. Make questions and answers, using the words from 6.



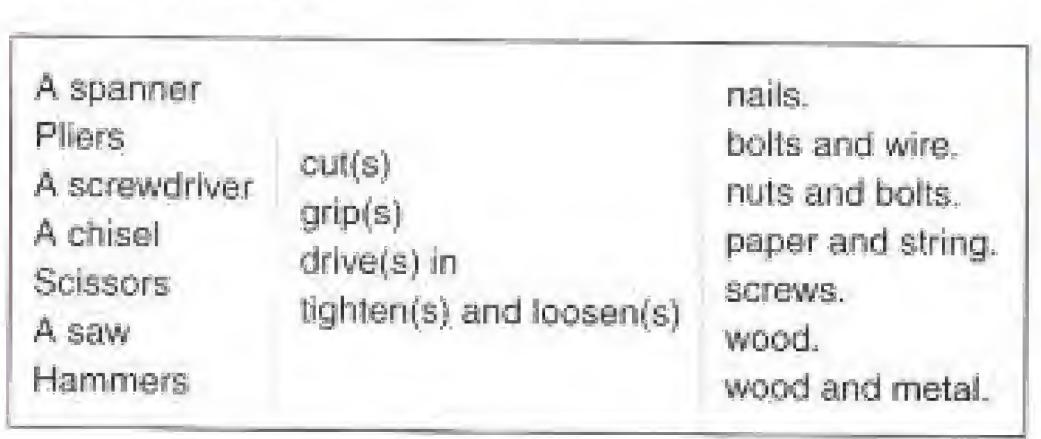
- A: Does a thermometer measure time?B: No, it doesn't. It measures temperature.
- 9 Match the pictures with the verbs in the box.

cut drive in grip löosen tighten



E









Social English 11 Make a list of job titles useful to you. Use a dictionary.

Examples: marine technologist, computer operator, automotive engineer, architectural technician

- 12 Find out about other students in your class.
  - A: What do you do?
  - B: I'm a/an .... (student/builder/mechanic ...)
  - A: Where do you study/work?
  - B: I study/work at .... (name of school/college/company ...)
  - A: What does ... do?
  - B: He/She's a/an ... . He/She works at ... .

### 3 Locations

### Start here

1 Listen to this computer lesson. Complete the dialogue with the words in the box.

at bottom on left right top

- OK, now put the cursor on the START button.
- O Where's the START button?
- O Yes. Is that it?
- Yes, that's correct.... Now, move the cursor up to the CLOSE button.
- O Where's that?
- It's an X. It's \_\_\_\_\_ the \_\_\_\_\_. At the \_\_\_\_\_.
- O is that it?
- Yes, that's it Now click.

### Vocabulary

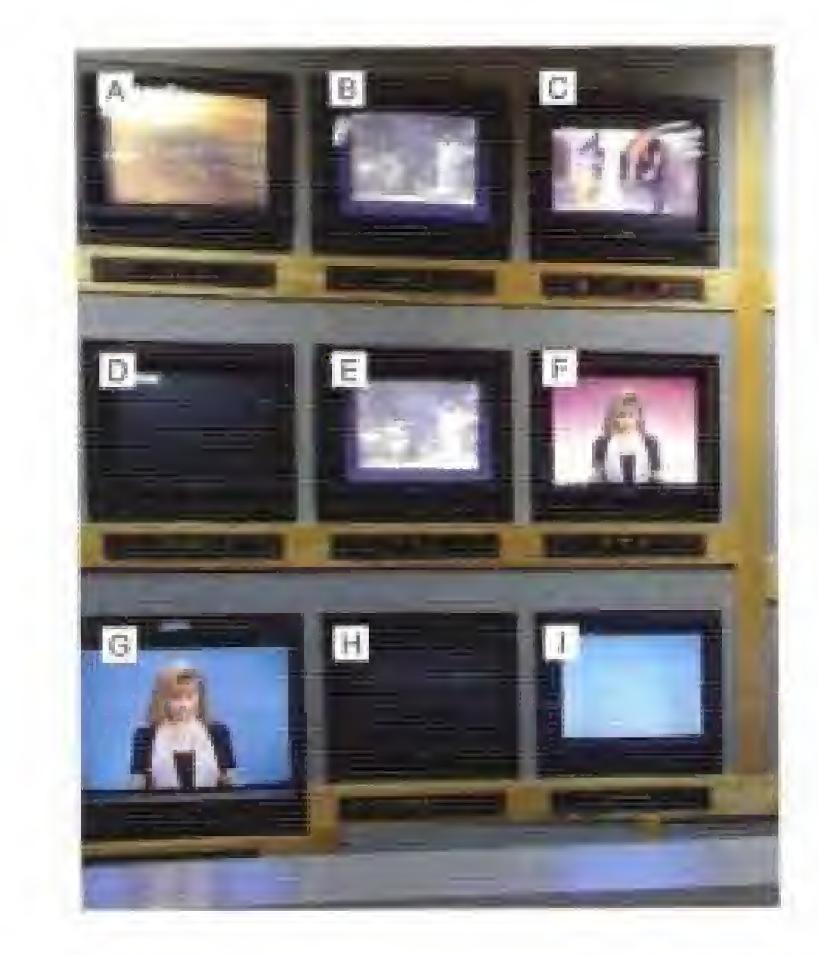
middle = ceatre

BrE centre, AmE center

2 Match the TV monitors with their locations.

1 bottom left \_\_\_\_

- 2 bottom right \_\_\_\_
- 3 centre bottom \_\_\_\_
- 4 centre left \_\_\_\_
- 5 centre right \_\_\_\_
- 6 centre top \_\_\_
- 7 top left \_\_\_
- 8 top right \_\_\_
- 9 centre \_\_\_

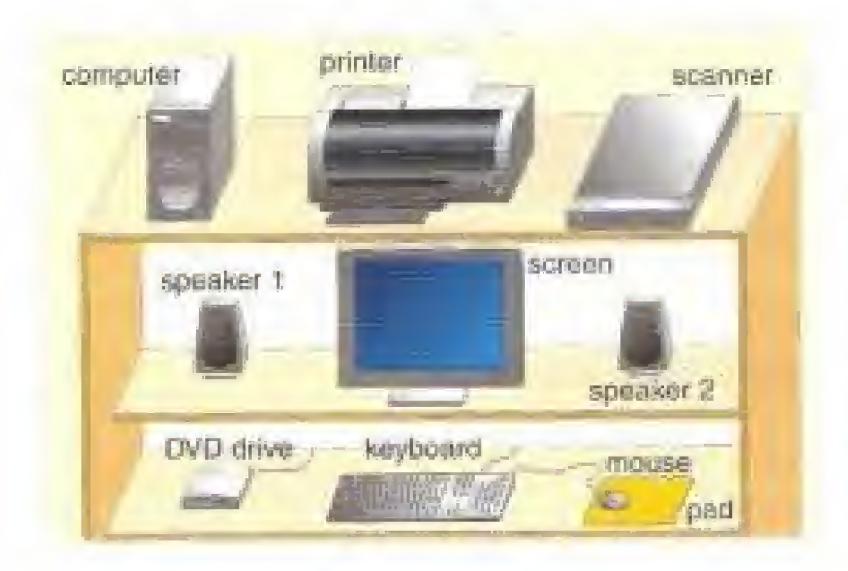


### Language

- in in the middle, in the centre
- at at the top, at the bottom
- on on the left, on the right

Reading

Correct this description. There are six mistakes in location.





Here is one way to set up your computer station. Put your screen in the centre of the system. Then put one speaker in the centre on the left, and put the other speaker in the centre on the right. Put the scanner at the top on the left, and put the computer at the top on the right. Then put the DVD drive at the top in the middle and put the printer at the bottom on the left. Finally, put the keyboard at the bottom on the right, and put the mouse at the bottom in the centre.

# Language 4 Look again at the computer station in 3. Are these statements true or false?

- 1 The computer is at the top, on the left. T/F
- 2 The computer is above speaker 1. T/F
- 3 The computer is to the left of the printer. T/F
- **5** Look at the diagram. When do we use *ON the left* and when do we use *TO the left OF?*
- 6 Complete the sentences about the computer station in 3 with the words in the box.

Speaker 2 is \_\_\_\_\_ the mouse.

above the circle

to the left of right of the circle

below the circle

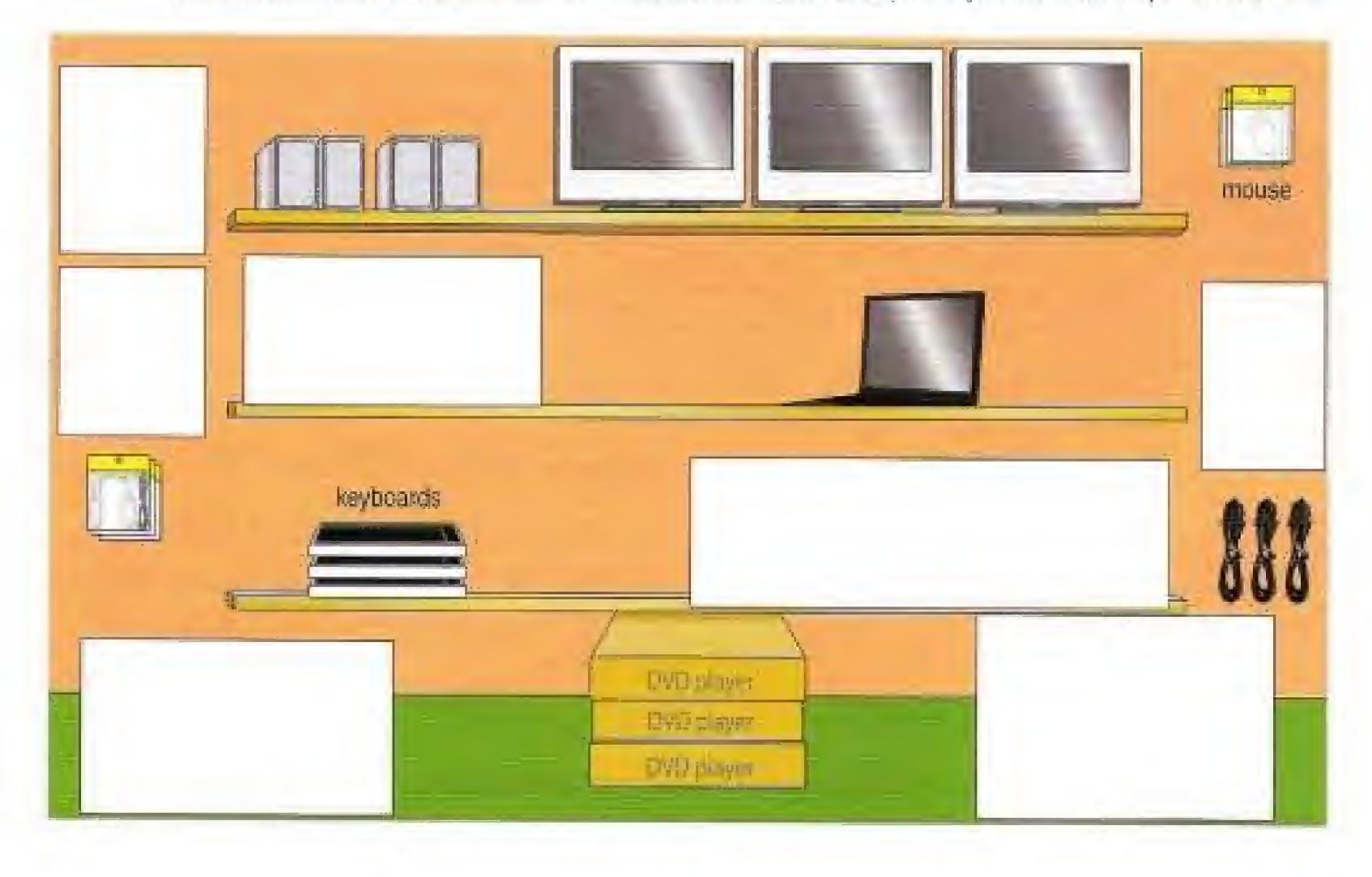
above at below of in on to

- The printer is \_\_\_\_\_\_ the top, \_\_\_\_\_ the middle.
  The scanner is \_\_\_\_\_ the right \_\_\_\_\_ the printer.
  The screen is \_\_\_\_\_ the printer.

  The mouse is \_\_\_\_\_ the bottom, \_\_\_\_\_ the right.
  The keyboard is \_\_\_\_\_ the left \_\_\_\_\_ the mouse.
- 7 Look again at the computer station in 3. Make sentences about the location of:
  - 1 the mouse 2 the DVD drive 3 the scanner 4 the screen
- Task 8 Work in pairs. Student A. Turn to page 65.

### Student B:

- 1 Answer Student A's questions. Use phrases from exercise 6.
- 2 Ask Student A where these items are and write them in their correct locations: mouse pads, scanners, CD-ROMS, adapter, printers, amplifiers, TV.



shell (singular); shelves (plural)

## Movement

### 1 Directions

### Start here

vertical line horizontal line

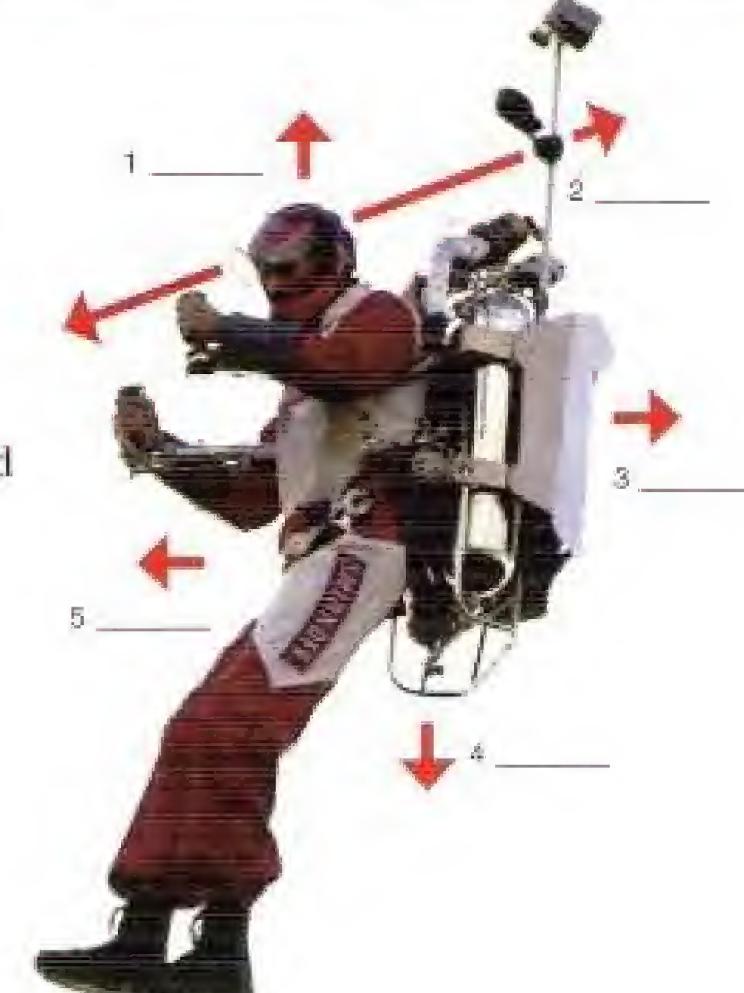
straight up/vertically up

1 Label the jetpack man's movements with the words in the box.

backwards down forwards sideways up

2 Work in pairs. Which directions can planes and helicopters fly? Tick the boxes.

Direction	Plane	Helicopter
forwards		
backwards		
up and down		
sideways		



Reading

3 Read the text. Check your answers to 2.

Passenger planes can fly forwards, and can turn to the left and to the right. But they cannot fly backwards or sideways. They can fly diagonally up and down, but they cannot fly straight up or straight down.

Helicopters can fly forwards, straight up and down, sideways and backwards. Planes and helicopters can both rotate. Planes and helicopters can rotate on their horizontal axis. Helicopters can also rotate on their vertical axis.

	20	K B	20.00	
-	41	1	90	1

		It. They	can can't/cannot	fly	sideways.	
C	an	it they		fly	sideways?	Yes, it can. / No, it can't Yes, they can. / No, they can't

- 4 Complete these sentences with can or can't.
  - 1 A helicopter \_\_\_\_\_ fly sideways, but a plane \_\_\_\_\_.
  - 2 A plane \_\_\_\_\_ fly sideways, but it \_\_\_\_\_ fly forwards.
  - 3 A plane \_\_\_\_\_ fly straight up, but a helicopter \_\_\_\_\_.
  - 4 A plane \_\_\_\_\_ fly straight up, but it \_\_\_\_\_ fly diagonally.

### Speaking

5 Work in pairs. Practise dialogues.

helicopter(s) / rocket(s) / plane(s) / fly sideways / fly straight up / fly diagonally up / rotate

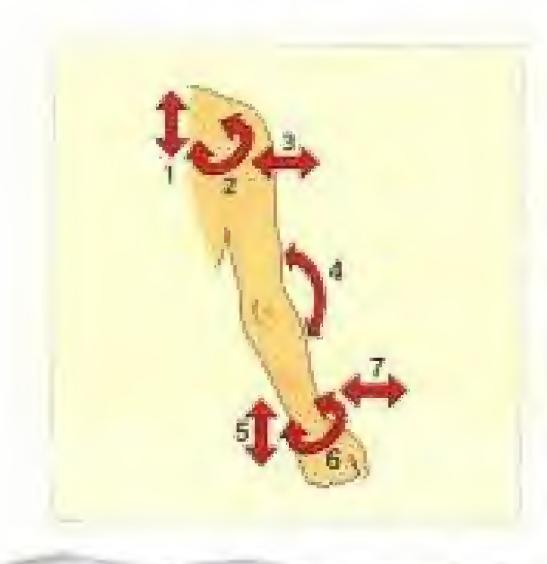
- A: Can a plane fly forwards?
- B: Yes, it can.
- A: Can it fly backwards?
- B: No, it can't.

Work in pairs. Follow the instructions and answer the questions. Task

Close your fist and hold your arm out straight in front of you.

- Think of your wrist. (Don't move it). How many directions can it move in? One, two, three or four?
- Think of your shoulder. (Don't move it). How many directions can it move in? One, two, three or four?
- Think of your elbow. (Don't move it). How many directions can it move in? One, two, three or four?

Reading Read the text. Check your answers to 6:



The human arm can move in seven different directions. The arm has three pivots: the wrist, the elbow and the shoulder. The wrist can move in three different directions. At the wrist, the hand can move up and down about 90°, it can move from side to side about 70°, and it

can rotate about 180°. The shoulder can move in the same three directions, but different angles. It can rotate about 20°. The elbow can only move in one direction. At the elbow, the forearm can only move up and down. It cannot move sideways or rotate.

Match each movement in the diagram in 7 with a word or phrase from the box. move sideways rotate move up and down

Listening

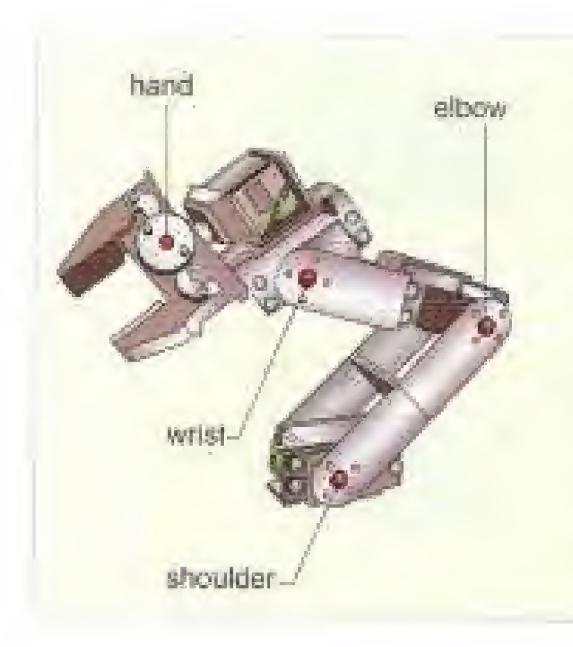
- Listen and choose the correct answers.
  - a) 19° b) 90°
- 3 a) 17° b) 70°
- a) 14° b) 40°
- 4 a) 118° b) 180°

Task 10 Work in groups. Look at the diagram in 11 and answer these questions.

- How many directions can this robot arm move?
- Which part of the robot arm has different movements from the human arm. Is it: a) the shoulder? b) the wrist? c) the elbow?

Complete the text about the robot arm with the words in the box. Language

> can't has is isn't can

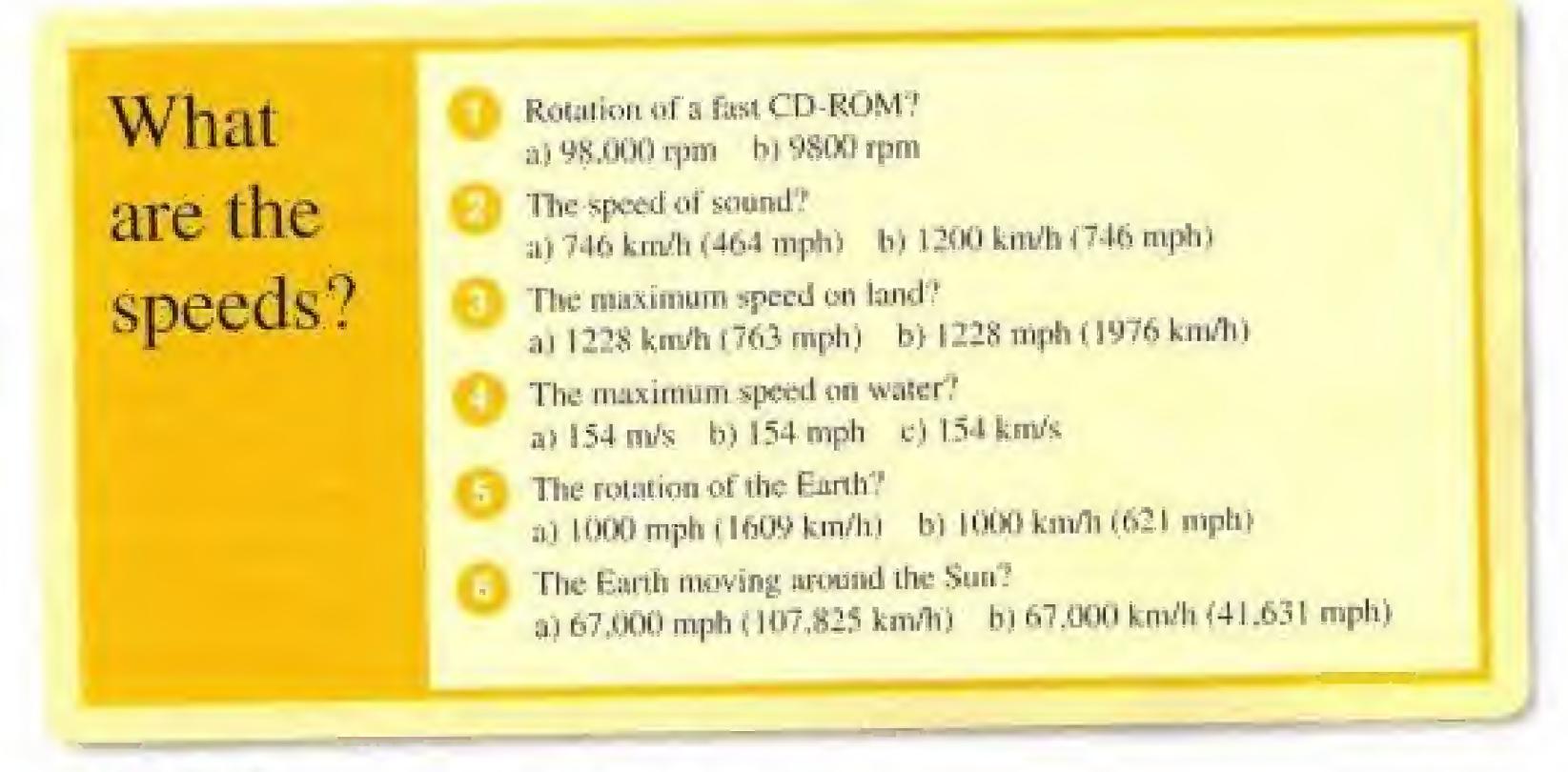


This robot arm (1) \_\_\_\_\_ like a human arm. It (2) \_\_\_\_ a 'wrist', an 'elbow' and a 'shoulder'. The 'wrist' (3) \_\_\_\_\_ like the human wrist. It (4) \_\_\_\_\_ three movements. It (5) \_\_\_\_\_ rotate: It (6) \_\_\_\_ move from side to side. It (7) \_\_\_\_ move up and down. The 'elbow' (8) \_\_\_\_\_ like the human elbow. It (9) \_\_\_\_\_ one movement. It (10) \_\_\_\_\_ move up and down. The 'shoulder' (11) \_\_\_\_\_ like the human shoulder, because it only (12) \_\_\_\_\_ two movements. It (13) \_\_\_\_\_ rotate, and it (14) \_\_\_\_ move up and down. But it (15) \_\_\_\_\_ move sideways.

### 2 Instructions

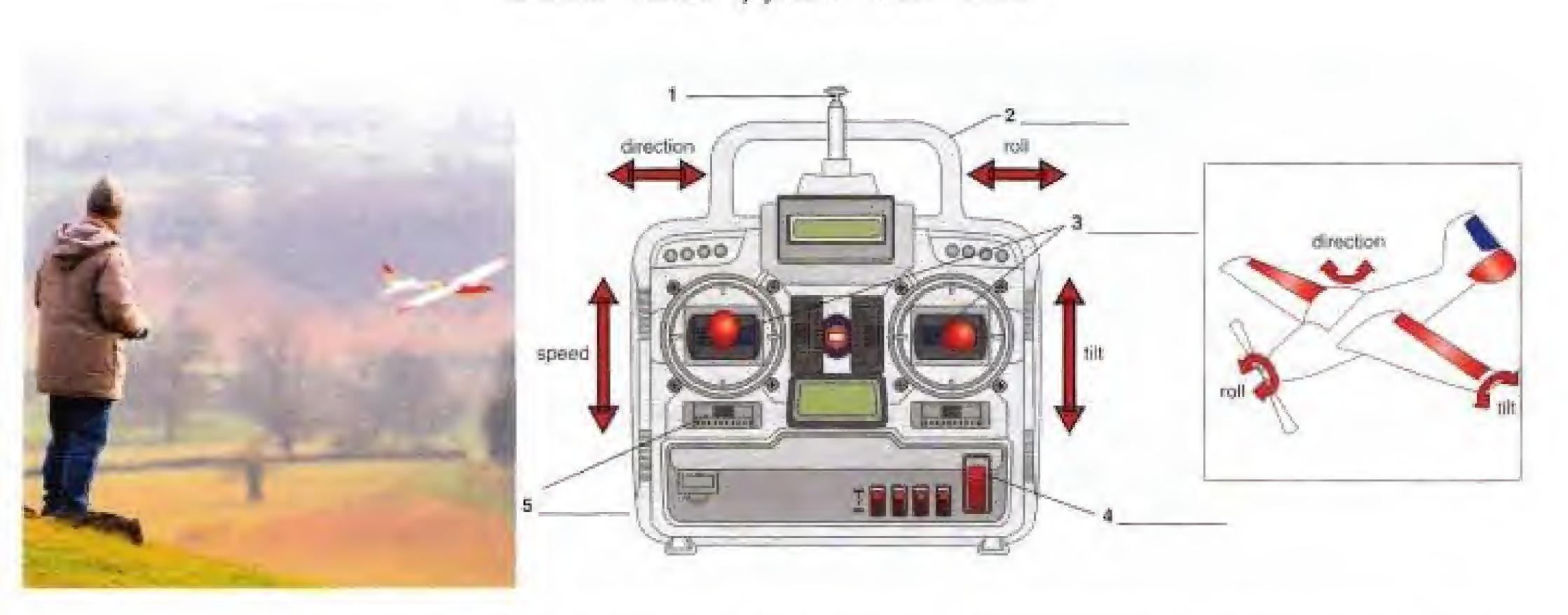
Start here. Try this guiz. Choose the correct answer.

km/h = k/lometres per hour (used by most countries) mph = miles per hour (used in some countries, including the US and UK) m/s = metres per second rpm = revolutions per minute: 1 revolution = 1 rotation of JEU



- Listening
- Listen and check your answers to 1.
- Work in pairs. Write down some speeds. Dictate them to your partner.
- Vocabulary
- Label the diagram with the words in the box.

joysticks slider switch antenna handle



Work in groups. What do you think the plane does when you move these Task controls?

Look at the joystick on the left.

- Push it up (away from you). Pull it down (towards you). What happens?
- Push it to the left. Push it to the right. Now what happens?

Look at the joystick on the right.

- Push it up. Pull it down. What happens?
- Push it to the left. Push it to the right. Now what happens?

### Remote control transmitter for model plane

### User manual

Look at the diagram of the transmitter. There are two joysticks. One is on the left. This is the left-hand (LH) stick. The other is on the right. This is the right-hand (RH) stick.

Now look at the LH joystick. This controls the speed and the direction of the plane. Push the LH stick up (away from you) and the plane accelerates. Pull (it) down (towards you) and the plane slows down. Slide the stick to the left and the plane turns left. Slide it to the right and (it) turns right.

Now look at the RH joystick. This controls the roll and the tilt of the plane. Push the RH stick up (away from you) and the plane descends (or goes down). Pull it down (towards you) and the plane ascends (or goes up). Slide the stick to the left and the plane rolls to the left. Slide it to the right and it rolls to the right.

- 7 Which words in the text do these pronouns refer to?
  - 1 it (line 4)
- a) direction
- b) plane
- c) LH stick

- 2 it (line 5)
- a) plane
- b) LH stick c) right
- 8 Match your actions with the plane's actions.

### Your action

- 1 Move the LH stick up. -
- 2 Pull the LH stick down.
- 3 Move the LH stick to the left.
- 4 Move the LH stick to the right.
- 5 Move the RH stick up.
- 6 Pull the RH stick down.
- 7 Move the RH stick to the left.
- 8 Move the RH stick to the right.

### The plane's action

- a) The plane goes to the left.
- b) The plane goes faster.
- 2) The plane goes down.
- d) The plane goes more slowly.
- e) The plane rolls to the left.
- f) The plane goes up.
- g) The plane rolls to the right.
- h) The plane moves to the right.

### Speaking

ascend - descend

- 9 Work in pairs. Make dialogues with the information from the table in 8.
  - A: Can the plane fly to the left?
  - B: Yes, it can. You move the left-hand stick to the left.

### Social English

- 10 Work in pairs. Find out what your partner can and can't do.
  - A: Can you swim?

- B: Yes, I can. Can you?
- A: Yes, I can. Can you sail a boat?
- B: No, I can't.











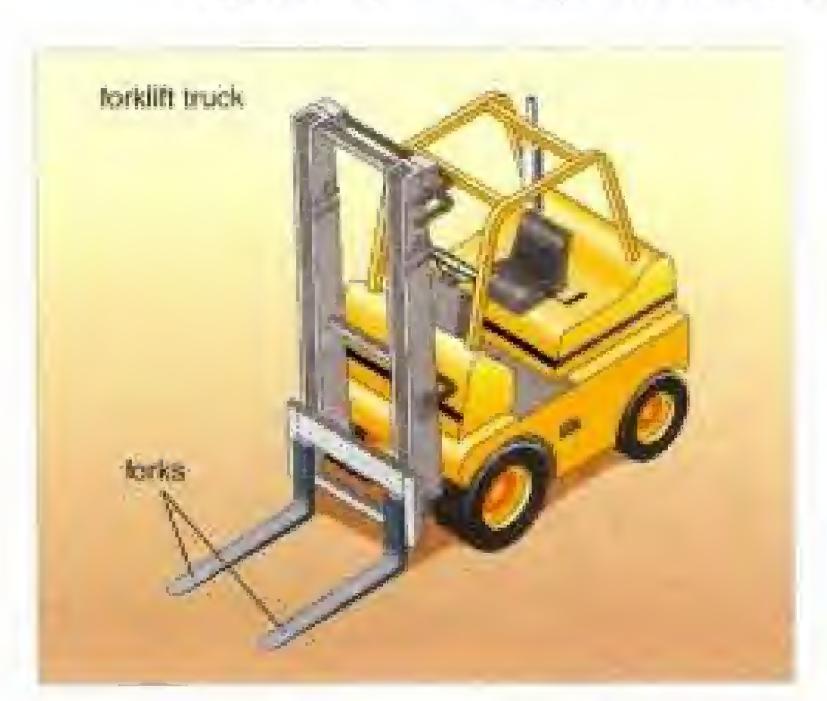


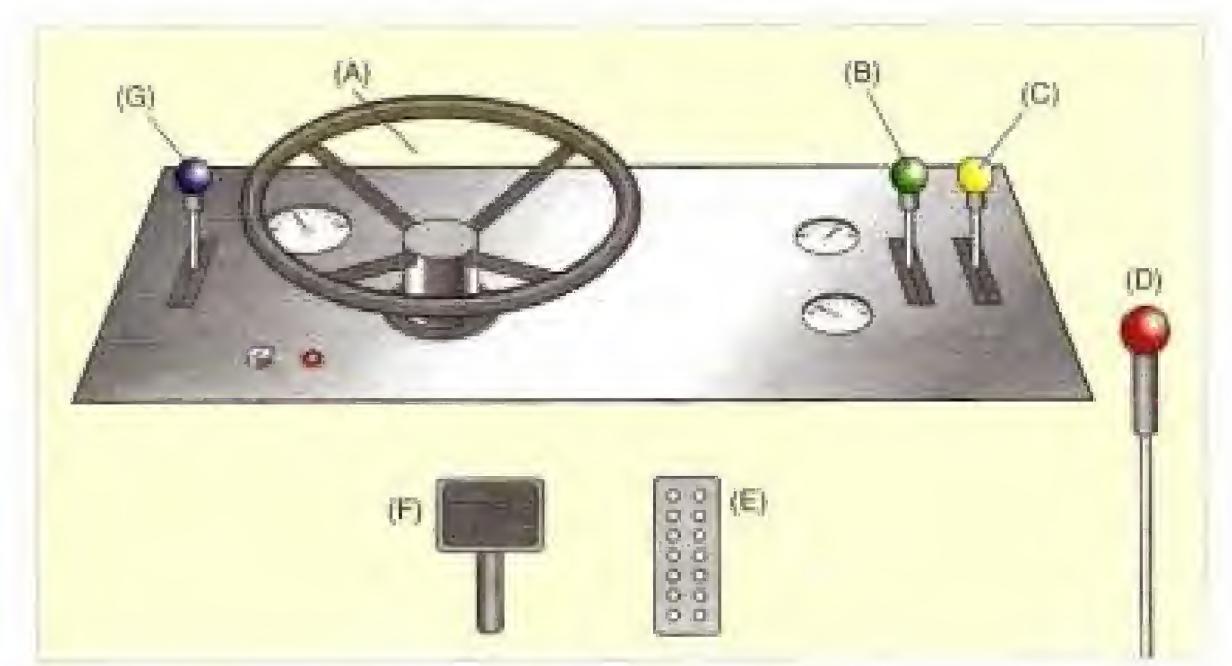




### 3 Actions

Start here 1 Look at the diagrams and answer the questions.





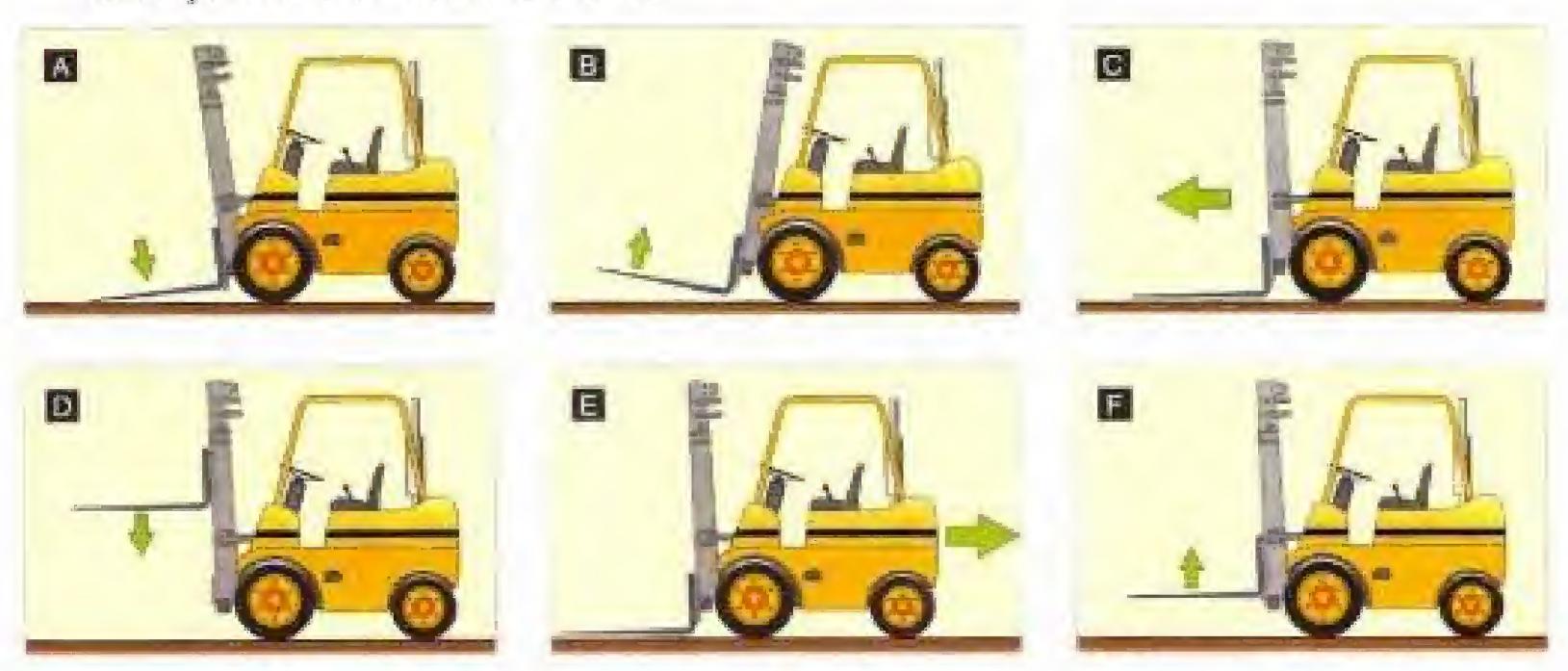
- 1 How many pedals does it have?
- 2 How many levers does it have?
- 3 Is the steering wheel on the left or on the right?

# **Reading** 2 Read the manual. Write the letters (A-G) from the diagram next to the controls.

reverse = go backwards

In the diagram, you can see the controls of the forklift truck. On the left is a lever. This is the direction lever (1 \_\_\_\_\_\_\_). Push this lever forwards, and the truck moves forwards. Pull it backwards, and the truck reverses. Next you can see the steering wheel (2 \_\_\_\_\_\_\_). This turns the truck to the left and right. At the top, on the right, you can see two levers. Push the left-hand lever (3 \_\_\_\_\_\_\_) forwards, and the fork moves up. Pull it back, and the fork moves down. Push the right-hand lever (4 \_\_\_\_\_\_\_) forwards, and the fork tilts up. Pull it back, and the fork tilts down. At the bottom, on the right, you can see a lever. This is the parking brake (5 \_\_\_\_\_\_\_). At the bottom, you can see two pedals. The LH pedal is the brake (6 \_\_\_\_\_\_\_). The RH pedal is the accelerator (7 \_\_\_\_\_\_\_).

3 Describe these movements of the truck. Use words from the manual. Example: A. The fork tilts down.



### Speaking 4 Work in pairs. Have a driving lesson.

Student A: You are the driving instructor. Give instructions.

Student B: You are learning to drive. Follow the instructions. Act them out.

Drive forwards. Reverse. Go slowly. Go faster. Slow down. Stop! Turn left. Turn right. Reverse to the left. Reverse to the right. Turn round. Do a U-turn. To the left. To the right.

turn round = do a U-turn

### Writing 5 Write a short set of instructions for one of these jobs. Draw a diagram.

- 1 How to park a car.
- 2 How to dock a small sailing boat.
- 3 (Choose your own job.)

# Write full sentences from these notes. Use when and you and add the and punctuation.

- 1 pull lever C backwards → fork tilts down
- 2 push lever B forwards → fork moves up
- 3 turn steering wheel to the right >> truck turns right
- 4 pull lever G backwards >> truck reverses
- 5 press brake pedal >> truck stops
- 6 press accelerator >> truck goes faster

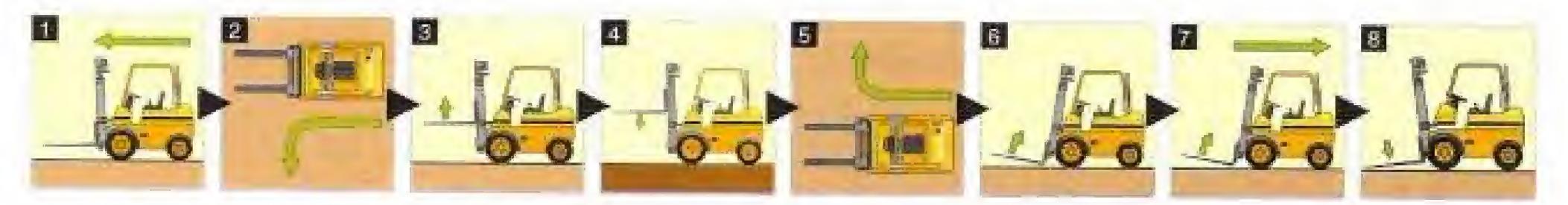
Example: I When you pull lever C backwards, the fork tilts down.

### Task 7 Work in pairs. Have a driving lesson for the forklift truck.

Student A. Turn to p. 66.

### Student B:

- You're the driving instructor for the forklift truck. Student A is learning to drive the truck. Tell Student A to follow these instructions in the correct sequence.
- 2 Then change roles. Follow Student A's instructions and rearrange your pictures into the correct sequence.



The correct sequence of the instructions is:

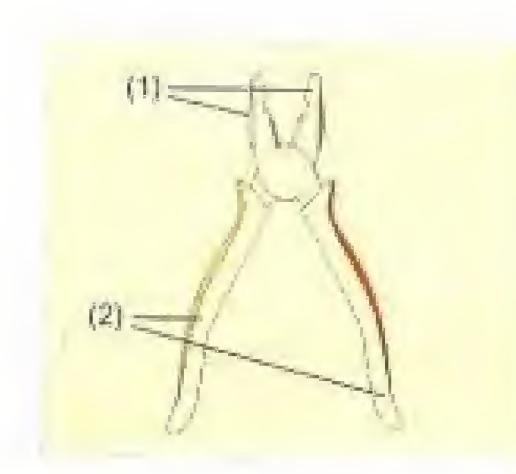


# Review Unit B

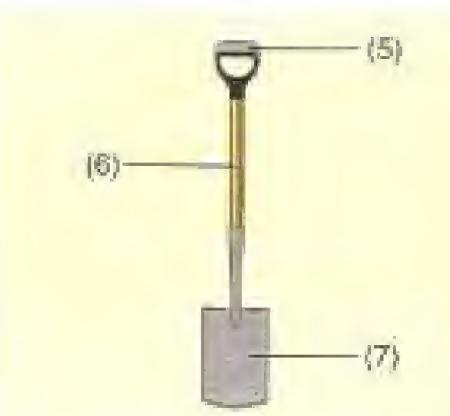
1	Rev	write these statements as questions.
	1	John has the spanners? Does John have the spanners?
	2	The students have a holiday tomorrow.
	3	The Multi Tool has a screwdriver.
		These bikes have strong brakes.
		The radio has an internal battery.
	6	Those houses have solar panels.
2	An	swer the questions in the negative. Then make a positive statement.
	1	Do you have a car? (motorbike)
	_	No, I don't have a car. I have a motorbike.
	2	Does your brother have a DVD? (VCR)
	3	Does the Multi Tool have scissors? (knife blade)
	4	Do we have English today? (Science)
	5	Does your radio have batteries? (dynamo)
	6	Do the pliers have plastic handles? (metal handles)
3	Re	ewrite these sentences using contractions where possible.
	7	The Multi Tool does not have a wrench. It is not very useful.
	ą.	The Multi Tool doesn't have a wrench. It isn't very useful.
	2	We do not have an AC adapter. We can not switch on the computer.
	3	I am a technician, but I do not have my tools here. I can not repair your T
	4	The electricity is off, and we do not have any batteries. You can not use the radio now.
4	G	live short answers.
	10	Can you swim? (No) No. Lean't:
	2	
	3	
	4	and the second of the second second by the second of the second s
	6	
	-	Are you a telecoms engineer? (No)
	E	and the second of the second o

- 5 Complete the dialogue with the correct form of the verbs in brackets.
  - Look at my radio. Do you like it?
  - O Yes, it's great. What (1) \_\_\_\_\_\_ (do) that handle (2) \_\_\_\_\_ (do)?
  - It (3) \_\_\_\_\_ (turn) a dynamo. The dynamo (4) \_\_\_\_ (produce).
     electricity for the radio.
  - O What are those, at the top?
  - They're solar panels. They (5) \_\_\_\_\_\_ (charge) the internal battery on a sunny day.
  - O Can the radio also (6) \_\_\_\_\_ (use) mains electricity?
  - Yes, it can. And it also (7) \_\_\_\_\_ (use) AA external batteries.
  - O So your radio (8) \_\_\_\_\_ (have) four power sources!
  - That's right.
- 6 Label the parts with the words in the box.

blade/blades handle/handles head jaws shaft









7 Describe the tools in 6.

Example: 1. A pair of pliers has two handles and two jaws.

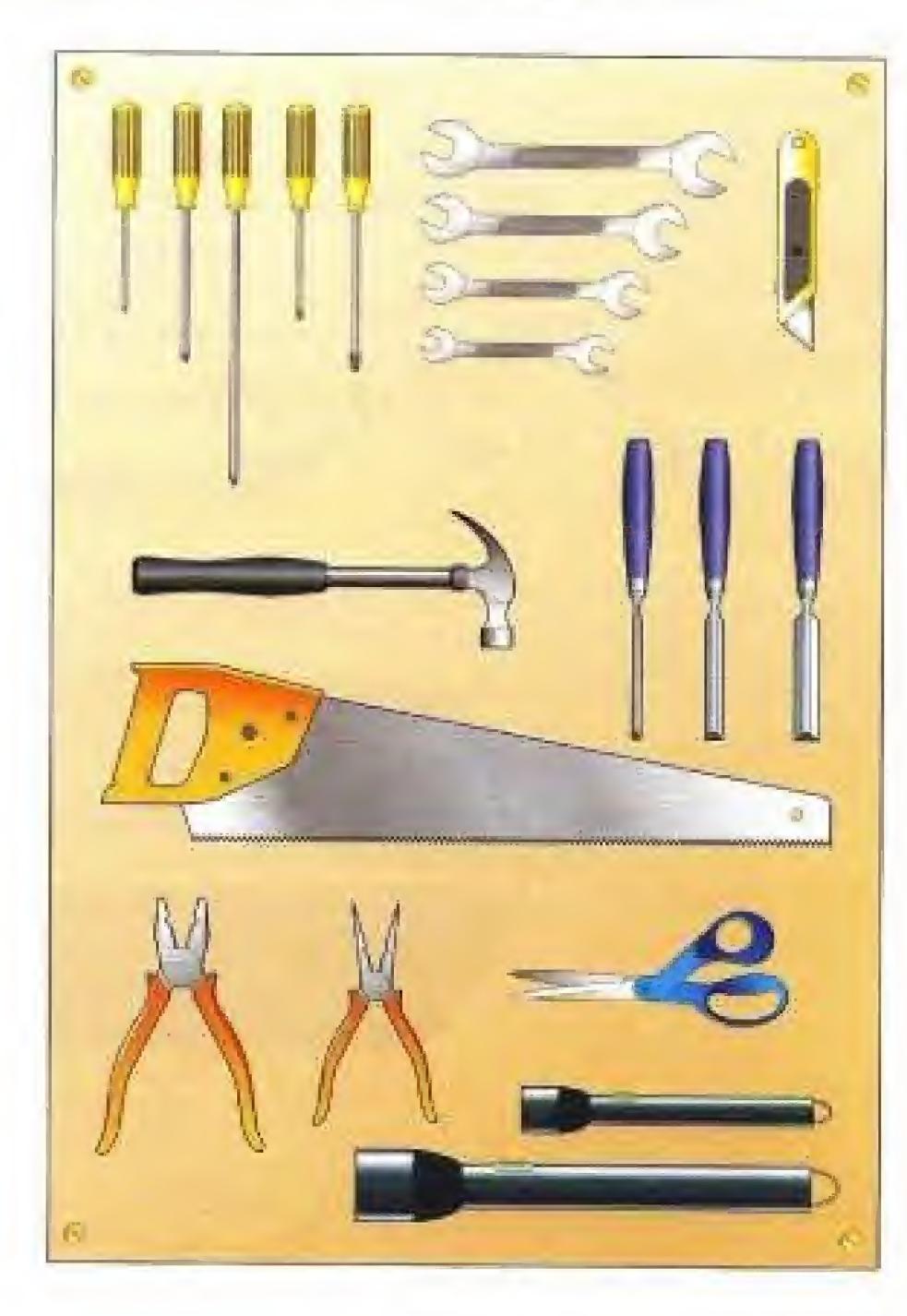
8 Look at this toolboard for 15 seconds. Then close the book and list all the tools.

Begin: Five screwdrivers. They're at the top, on the left.

9 Look again at the toolboard on the right. Make sentences with the words in the box.

> above below to the left of to the right of

Example: The screwdrivers are to the left of the spanners and above the hammer.



- Guess the device from its description.
  - This item covers the head and protects it. Skateboarders use it.
  - This tool has handles and jaws. It can grip nuts and bolts. It pulls nails out.
  - This equipment converts (or changes) sunlight into electricity.
  - You rotate these items onto bolts. You tighten them with a spanner.
  - This item receives radio and TV signals. You can see it on a house or car.
  - This equipment produces electricity when it rotates.
- Complete these questions and answers with the words in the box.

Notice the spelling change: study 🗲 studies

work/works study/studies come/comes does CO

- She \_\_\_\_\_ at Vodafone. Where are you from? -\_\_\_\_a student. b) 1 What \_\_\_\_\_you do? She \_\_\_\_\_ a technician. Where \_\_\_\_\_\_you study? She \_\_\_\_\_ from Finland. What \_\_\_\_\_ your subject? Lam from Japan. \_ Elli come from? Where \_ at the Technical she a student, too? College. telecoms engineering. she do? What \_ h) No, she \_\_\_\_\_not.
- Match the questions with the answers in 11.
- 13 Work in pairs. Practise the questions and answers in 11. Use contractions where possible.

Example: I-e A: Where are you from? B: I'm from Japan.

- Cross out the silent letters in the words below. Say the words.
  - descend scissors knife right build wrist tighten ascend building

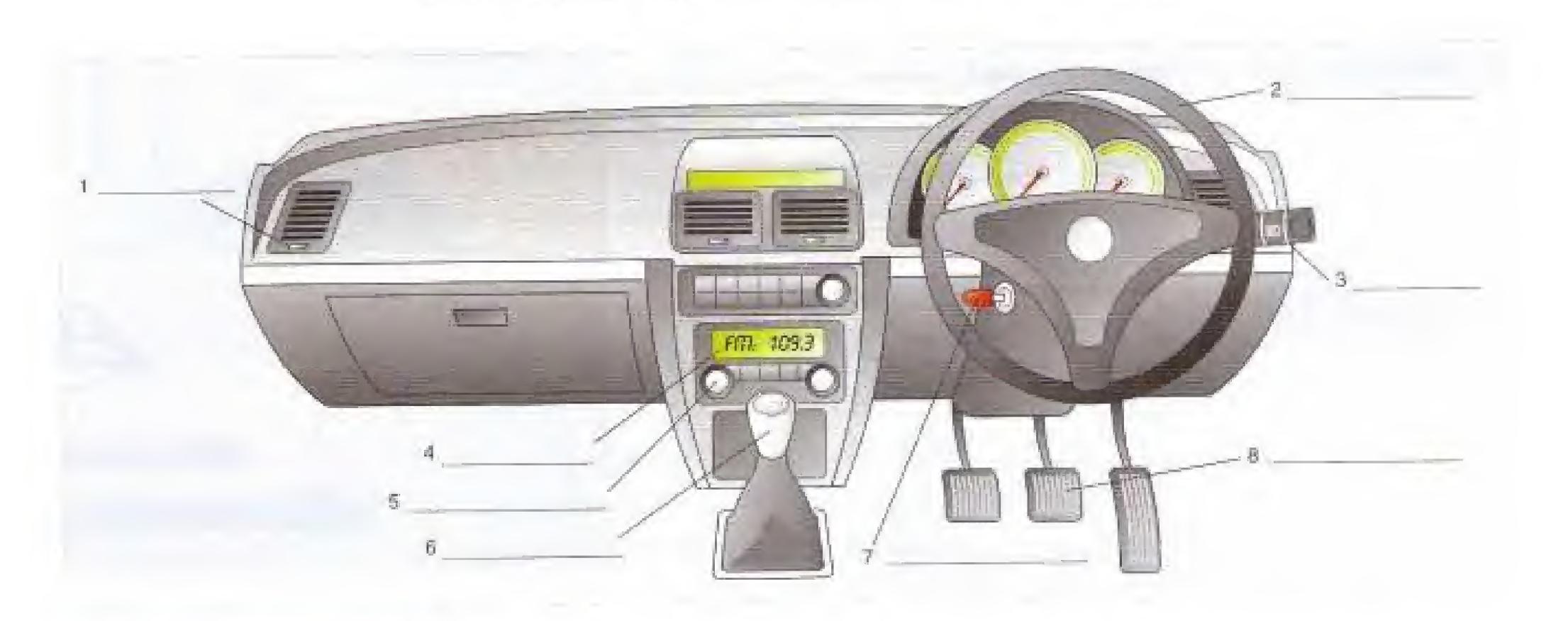
she work?

Example: yrrench

Where.

Label the controls with the words in the box.

wheel switch pedal slider key lever display button



### 16 Put a, an, some or a pair of before each item.

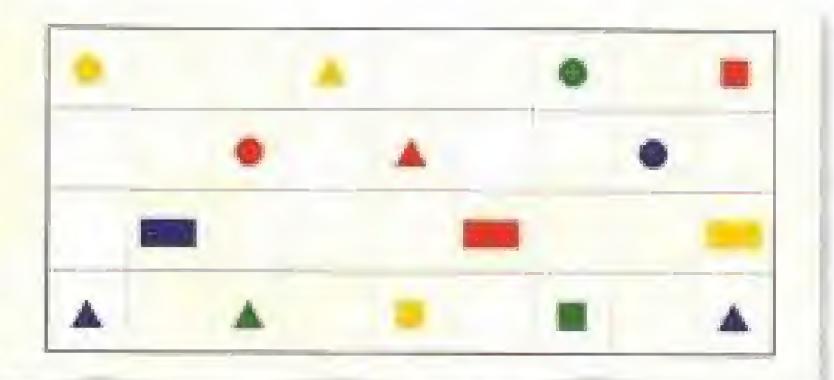
Jy.					
printer	AC ad	apiter	speakers	keyboard	amplifier
headph	ones	earphones	nuts	bolis	pliers
headph		sarphones		bolis	plier:

- 17 Make positive and negative statements.
  - 1 this opener ... open bottles / open tins x
  - 2 these wrenches ... tighten the M12 bolts x loosen the M5 nuts x
  - 3 that antenna ... receive radio signals  $\checkmark$  transmit them x
  - 4 a rocket ... fly straight up / reverse x
  - 5 passenger planes ... fly sideways X turn left and right V
  - 6 1... drive a car / operate a forklift truck X

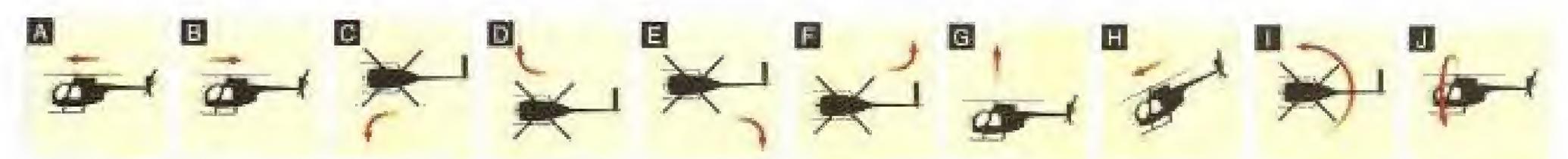
Example: 1 This opener can open bottles, but it can't open tins.

18 Follow the instructions.

Start at the red triangle. Move sideways three boxes to the right. Go diagonally up one box to the right. Move horizontally eight boxes to the left. Descend vertically three boxes. Go diagonally up two boxes to the right. Move diagonally down two boxes to the right. Where are you?



- 19 Match pictures with the instructions below.
  - 1 Fly diagonally down.
  - 2 Fly forward.
  - 3 Fly straight up.
  - 4 Reverse.
  - 5 Rotate on a vertical axis.
- 6 Reverse to the left.
- 7 Turn left.
- 8 Rotate on a horizontal axis.
- 9 Turn right.
- 10 Reverse to the right.



### Projects 20 Make a list of job titles in your industry.

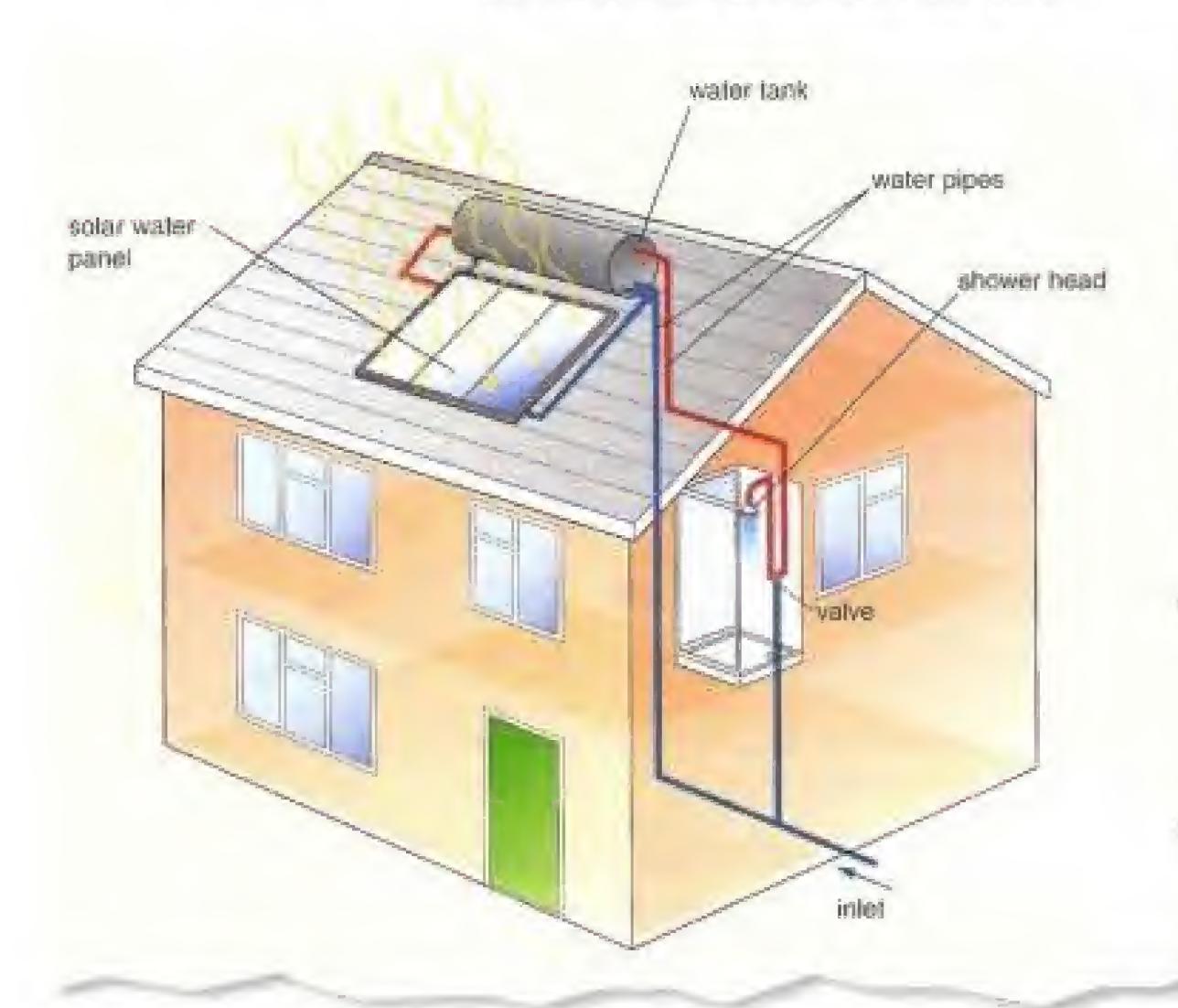
Example: Construction Industry: structural engineer, quantity surveyor, site manager, architectural technician, etc.

21 What do these word parts mean? Find other words with the same part.

Word part	Meaning of word part	Example of word	Meaning of word
multi-		1 multimedia	
I I SLIBEU		2	2
		1 thermometer	1
therm-		2	2
kilo-		1 kilometre	1
MILLO		2	2

### 1 Heating system

Start here 1 Work in groups. Which way does the water flow in this system? Draw arrows to show the direction of the flow.



### Solar water heater

The main parts of this system are water pipes, a solar water panel, a water tank, an inlet, a valve and a shower head. The tank is above the solar panel.

Cold water enters the system through the inlet. (It) then flows into the tank. From (here), the water flows into the solar panel.

The Sun heats the water in the panel.

The hot water rises and flows from the panel into the tank. In the tank, hot water stays at the top and cold water sinks to the bottom.

When you open the valve, hot water

15 flows from the tank, through the valve,
to the shower head. Here (it) finally
leaves the system.

### Reading

- 2 Read the text. Check the directions of your arrows in 1.
- 3 What do these words refer to?
  - 1 lt (line 6)
- a) inlet
- b) cold water
- c) system

- 2 here (line 7)
- a) tank

a) tank

b) inlet

b) valve

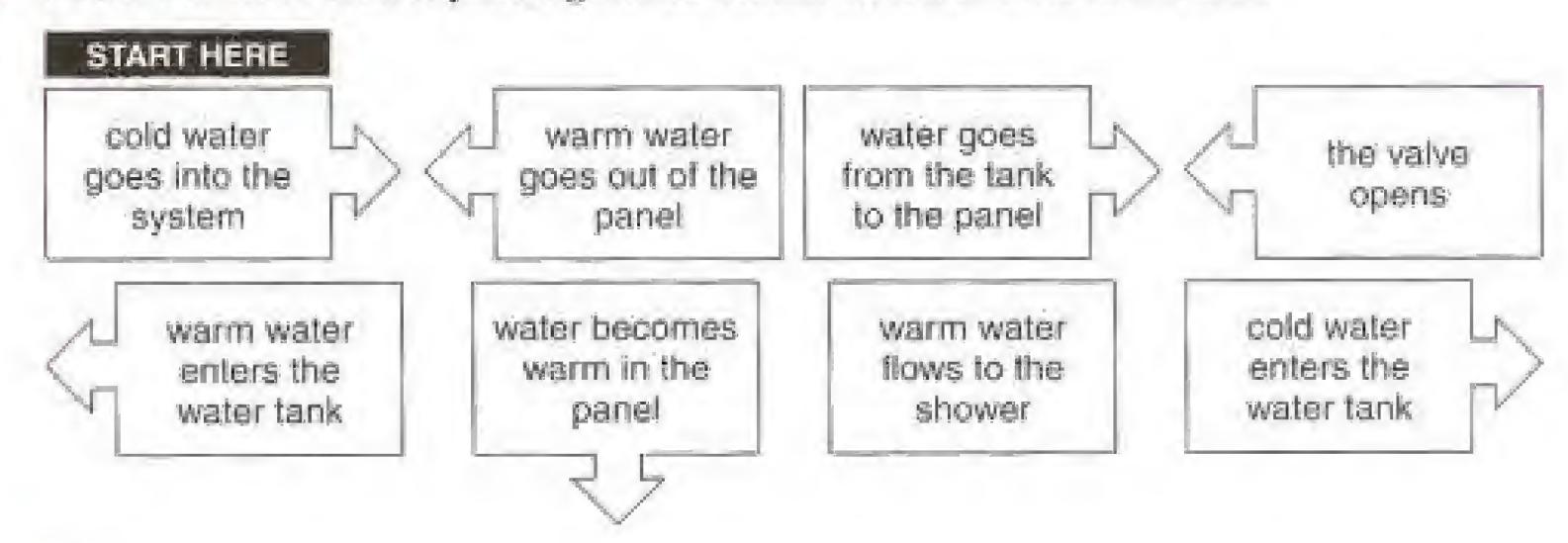
c) water

- 3 Here (line 16) 4 it (line 16)
- a) shower head
- b) valve
- c) hot water

c) shower head

Example: I Cold water enters the system through the inlet. It then ..... In line 6, it refers to cold water.

4 Draw the flow chart, putting these boxes into the correct order.





		flow move	-5	out of the tank.
The water		go pass		through the pipes.  around the solar panel.  to the outlet.  from the inlet.
The electron	-5	flow go		around the circuit. through the cables.

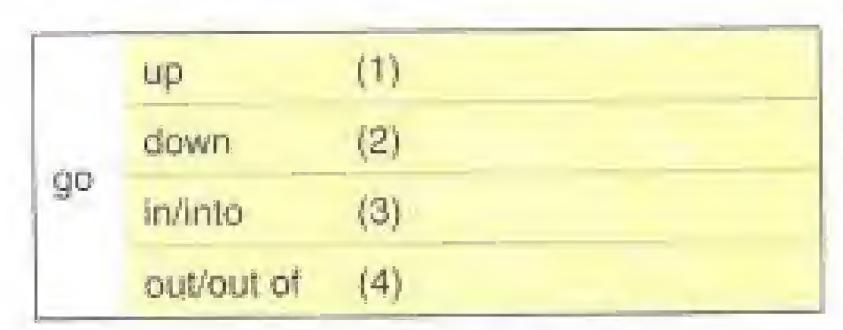
Vocabulary

5 Label the diagrams 1–6 with the prepositions in the box.

around from into out of through to

6 Complete the table with the verbs in the box.

enter leave rise sink



7 Complete the sentences with the correct form of verbs from the table in 6.

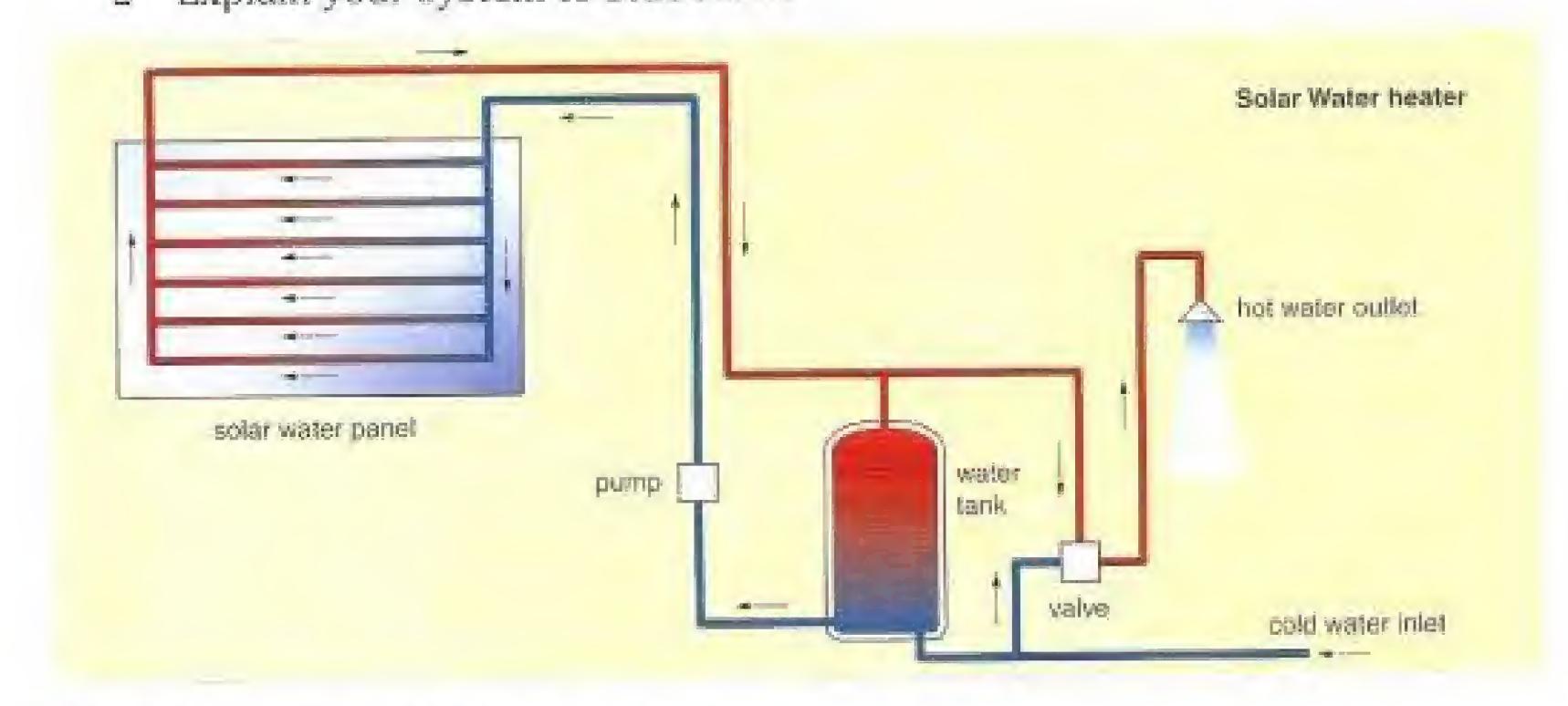
- 1 Water \_\_\_\_\_ the house through the inlet pipe.
- 2 Water \_\_\_\_\_ the solar panel through the outlet pipe.
- 3 When you heat the water in a tank, the hot water \_\_\_\_\_\_
- 4 When you cool the air in a room, the cool air \_\_\_\_\_

Task 8 Work in pairs. Explain your system to your partner.

Student A. Turn to page 65.

Student B:

- 1 Listen to Student A, and ask questions. Then draw a simple diagram of his/her system.
- 2 Explain your system to Student A.



Writing 9 Write an explanation of your system.

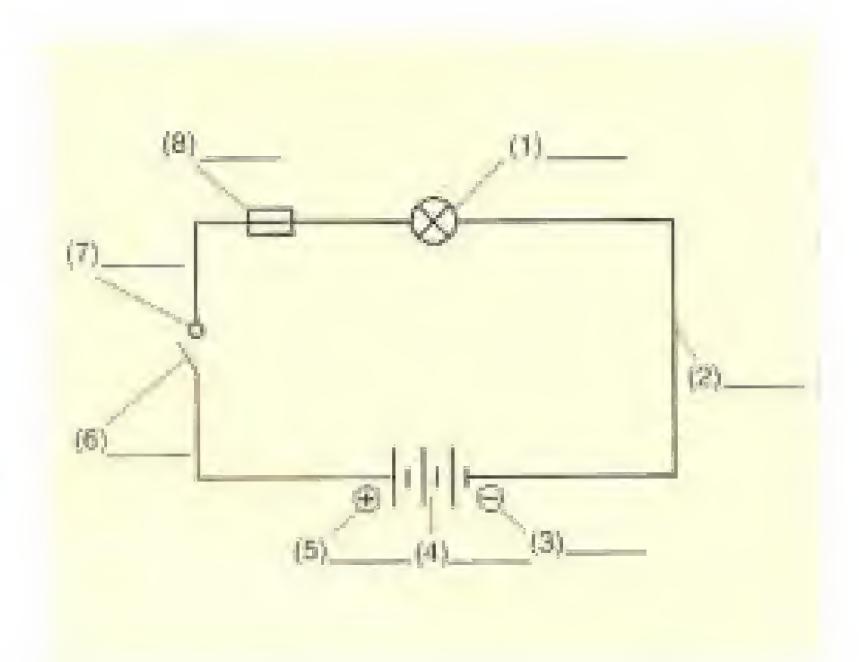
### 2 Electrical circuit

### Start here

1 Do you know these electrical symbols? Label the circuit diagram with the words in the box.

battery conductor fuse lamp negative positive switch terminal

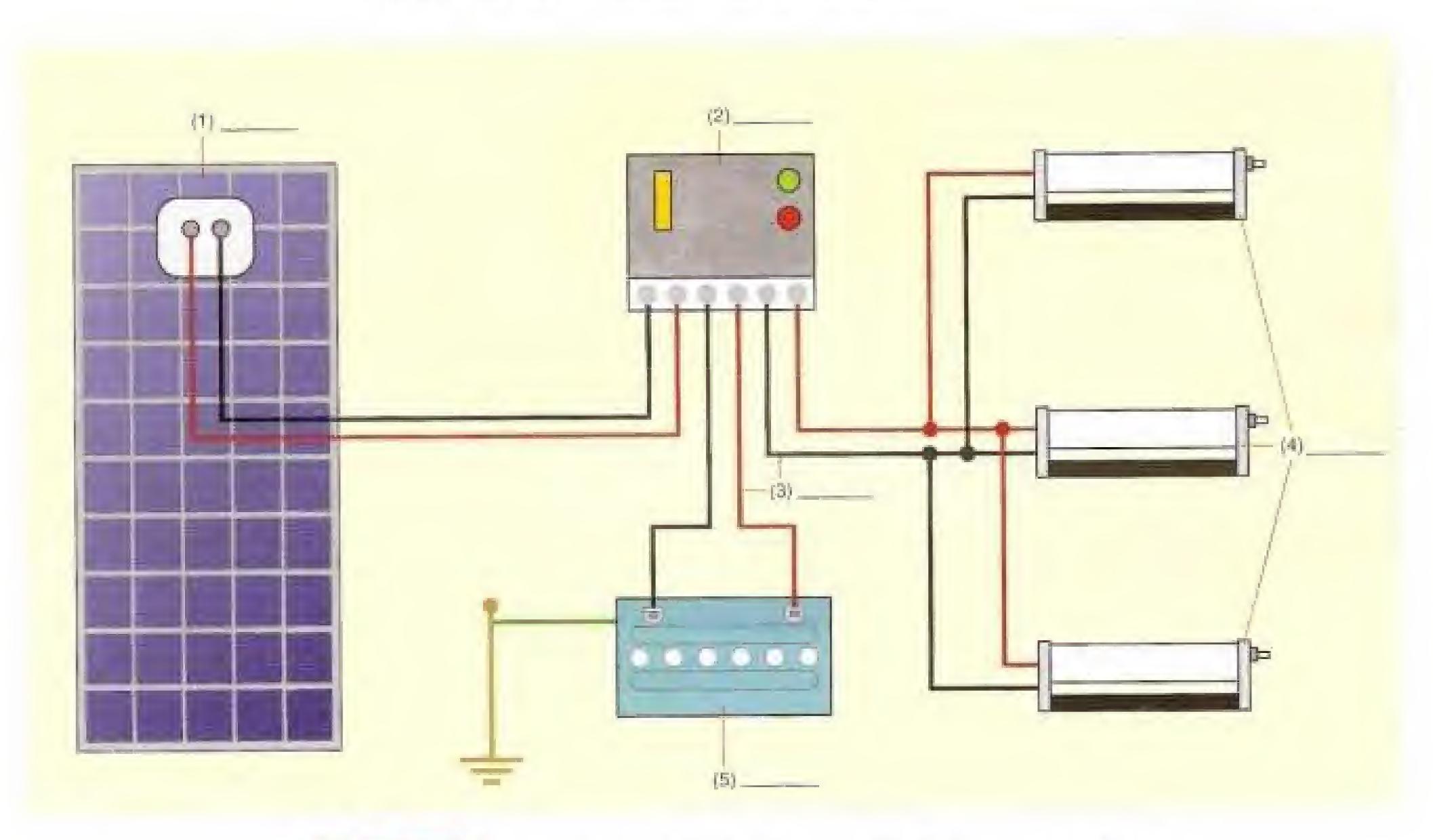
See the glossary of electrical symbols on page 59 for answers.



### Listening

2 Listen and label the diagram with the words in the box.

battery cables controller lamps solar panel



- 3 Listen and match the items with their specifications.
  - 1 solar panel
- a) 12V 8W
- 2 controller
- b) DC
- 3 battery
- c) 5A

4 lamps

- d) 60W
- 5 electrical current
- e) 12V 100Ah
- Task 4 Work in pairs. Look again at the diagram in 2. Where does the current flow in these three situations? Draw arrows.

Situation 1: The Sun shines. The lamps are on.

Situation 2: The Sun shines. The lamps are off.

Situation 3: The Sun doesn't shine. The lamps are on.

5 Read the manual for the solar panel and check your answers to 4.

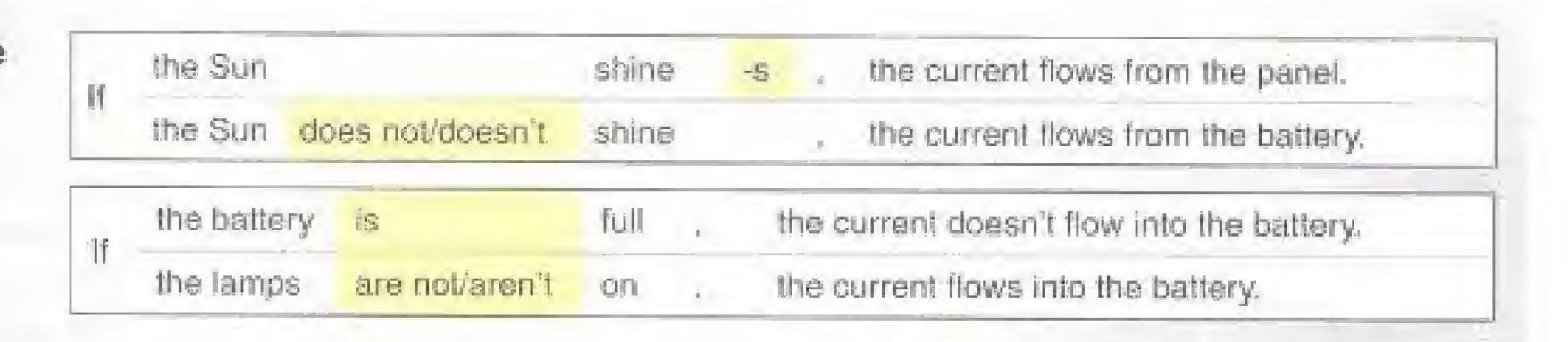
convert = change

How does the solar power system work? The panel converts the Sun's energy into a DC electric current. The current flows to the controller. Then it can flow from the controller to the lamps. Or it can flow from the controller into the battery. The battery stores the electricity. The current can flow from the battery into the lamps through the controller.

If the Sun shines, the DC current can flow from the panel, through the controller and into the lamps. If the Sun doesn't shine, the current can flow from the battery, through the controller and into the lamps. If the lamps are off, the current can flow from the panel, through the controller, and into the battery.

The controller controls the flow of the current. If the battery is full, the controller stops the flow from the panel into the battery. If the battery is empty, the controller stops the flow from the battery into the lamps.

### Language

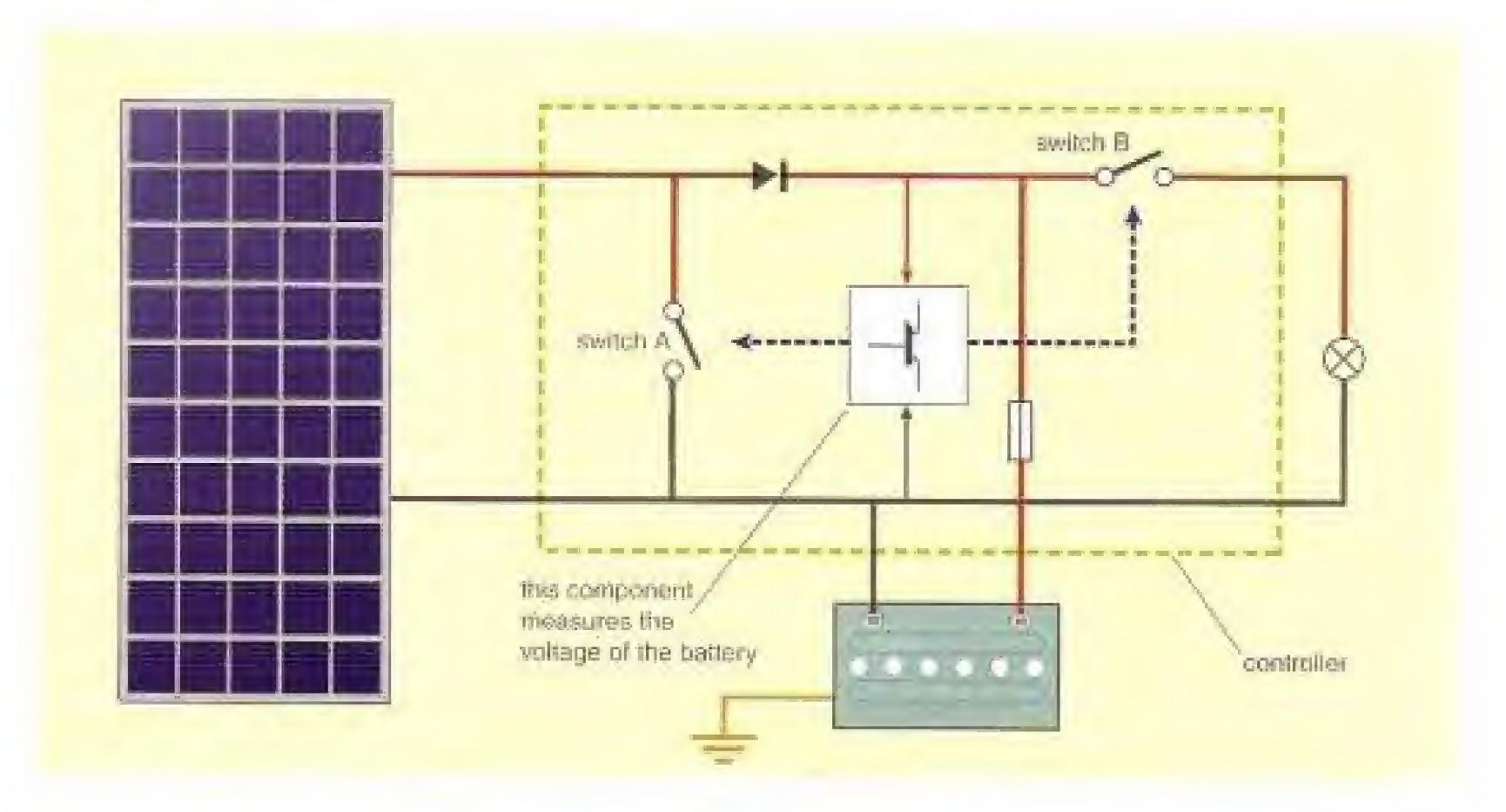


- Task 6 Work in pairs. How do you think the controller below works? Make notes.
  - 7 Complete the text explaining how the controller works. Choose the correct verb and use the correct form of the verb.

If the battery is full, switch A (1) \_\_\_\_\_\_ (open/close). Then the current (2) \_\_\_\_\_ (flow/not flow) from the panel to the battery. The controller short-circuits the panel.

If the battery is empty, switch B (3) \_\_\_\_\_\_ (open/close).

Then the current (4) \_\_\_\_\_ (flow/not flow) from the battery to the lamp.



# 3 Cooling system

### Start here

Try this quiz. Choose the correct answer.

What are the normal or average temperatures for these?

"F = "C " 9 / 5 + 32 This converts Celsius to Fahrenheit. °C = (°F - 32) ° 5 / 9. This converts Fahrenheit to

Celsius:

- Water from a shower?
- a) 60°C (140°F)
- b) 80°C (176°F)

- Food in a refrigerator?
- a) 4.5°F (-15°C)
- b) 40°F (4.5°С)

- Food in a freezer?
- a) 0°C (32°F)
- b) -18°C (0°F)

- Coldest air temperature ever?
- a) -89°C (-128°F) b) -20°C (-4°F)

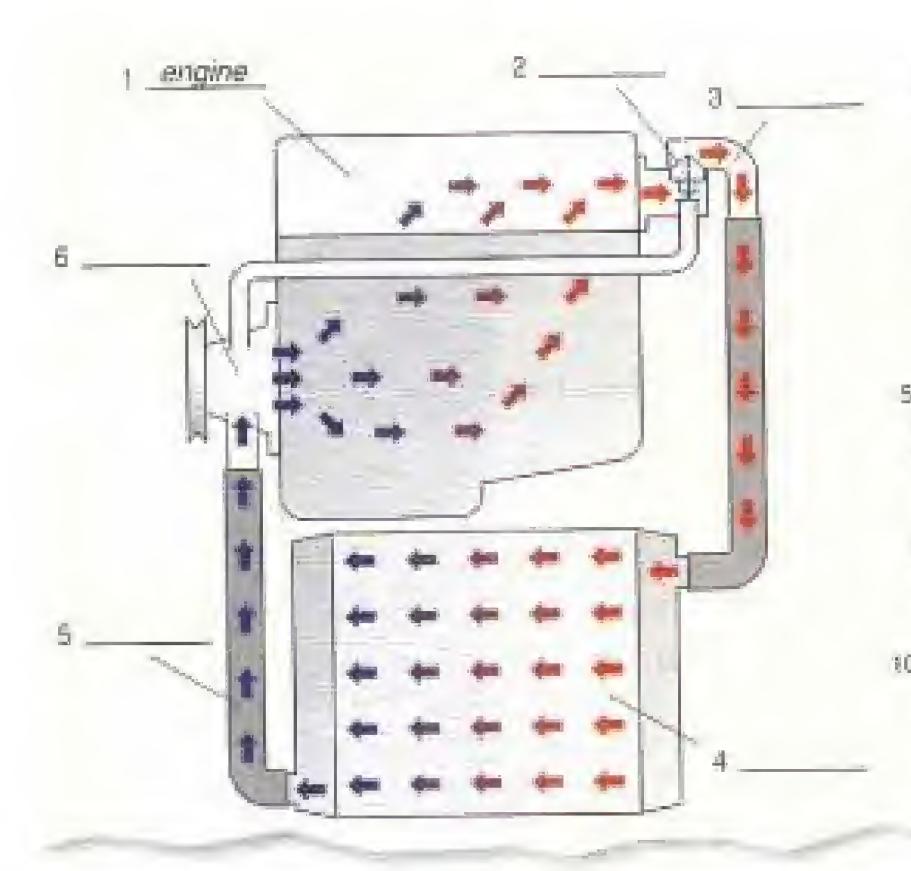
- Hottest air temperature ever?
- a) 156°F (70°C)
- b) 136°F (58°C)

- Water in running car engine?
- a) 110°C (230°F).
- b) 45°С (110°F)

### Listening

- Listen and check your answers.
- Reading
- Label the diagram with the words in the box.

water pump top hose thermostat radiator bottom hose engine



## Car cooling system

The engine drives the water pump and the pump pushes cool water around the engine. This cools the engine. At the same time, the water becomes hot. The water in a hot engine is normally around 110°C.

- The hot water then passes through the thermostat. This controls the temperature of the engine. From the thermostat (it) flows through the top hose into the radiator. Here), a fan cools the water, and the cool water sinks to the bottom of the radiator.
- The cool water then leaves the radiator(It)flows along the bottom hose, passes through the pump and enters the engine again.
- Read the text. Check your answers to 3.
- Which words in the text do these words refer to?
  - This (line 6)
- a) hot water
- b) thermostat
- c) temperature

- it (line 7)
- a) engine
- b) thermostat b) radiator
- c) water c) fan

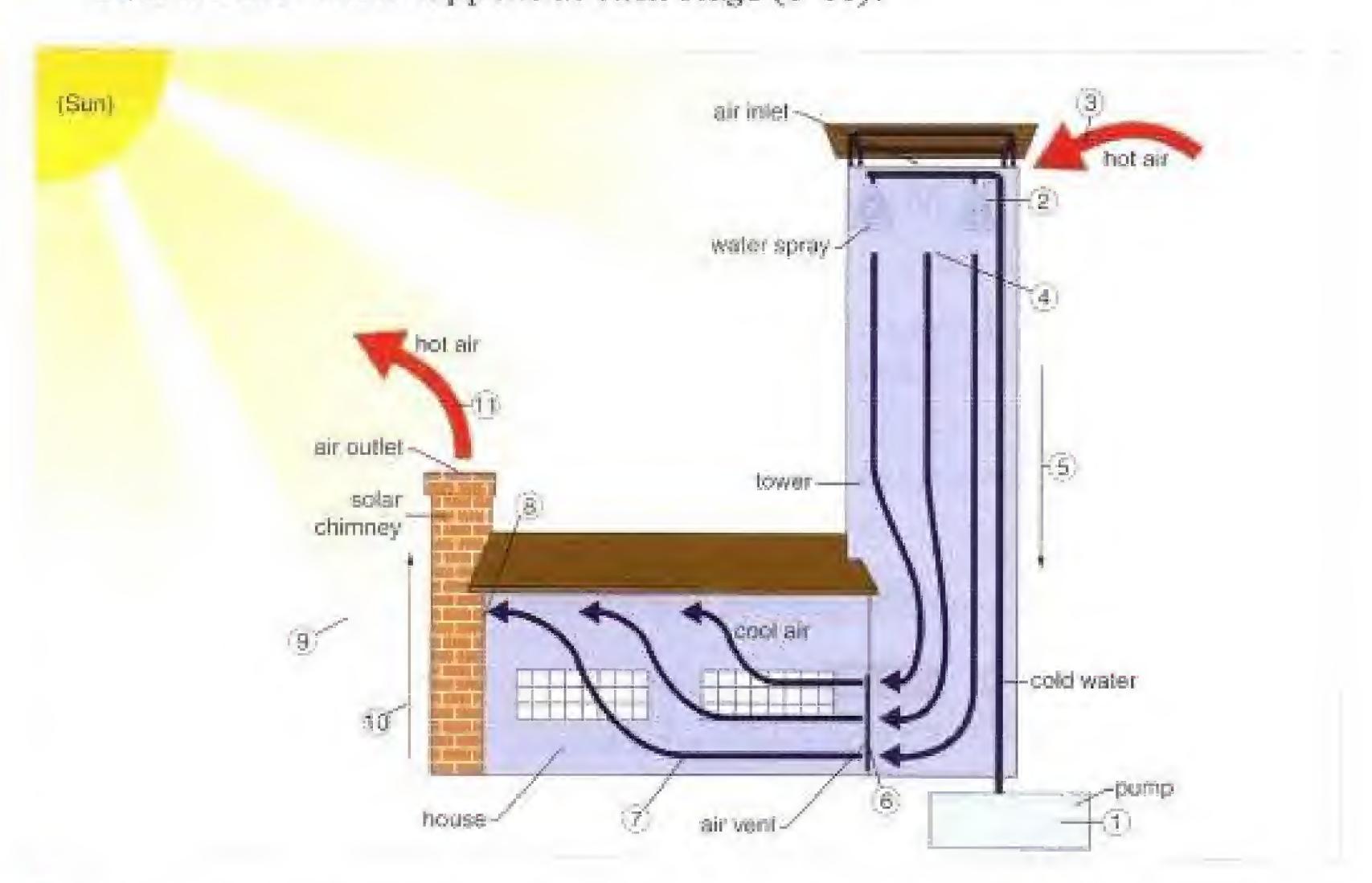
- Here (line 8) It (line 10)
- a) top hose a) water
- b) radiator
- c) bottom hose

### Speaking

Make true sentences.

<ul><li>(1) The water pump</li><li>(2) The thermostat</li><li>(3) The two hoses</li><li>(4) The radiator</li></ul>	control(s) connect(s) push(es) cool(s)	the radiator to the engine.  air onto the radiator.  the hot water from the engine.  water around the engine.
(5) The fan blades	flow(s) rise(s)	to the bottom of the radiator. the temperature of the water.
(6) Cool water (7) Hot water	sink(s)	through the two hoses.
(8) Water	blow(s)	to the top of the engine.

**Task** 7 Work in groups. This is a simple way to cool a house in a hot country. How does it work? What happens at each stage (1–11)?



# Writing 8 Complete this description of how the cooling system works with the verbs and prepositions in the box.

cool enter flow heat leave rise sink around into out of through to

The pump pushes cold water through the pipe to the top of the tower (1). Here, the water leaves the pipe through small holes. It's like a cold shower. (2). Hot air \_\_\_\_\_\_\_ the tower \_\_\_\_\_\_ the air inlet (3).

The shower of cold water \_\_\_\_\_\_ the air (4). The cool air then \_\_\_\_\_\_ to the bottom of the tower (5).

The cool air \_\_\_\_\_\_ the house, (6) and then it \_\_\_\_\_\_ (7). It \_\_\_\_\_ the house and \_\_\_\_\_\_ the solar chimney (8).

The Sun \_\_\_\_\_\_ the chimney, (9) and the hot air \_\_\_\_\_\_ (10).

The hot air finally \_\_\_\_\_ the chimney \_\_\_\_\_\_ the air outlet (11).

### Social English 9 Listen and read.

Dan is an electronics student. He also works part-time in an electronics workshop.

- I work in the electronics workshop every Thursday and Friday.
- O When do you attend lectures?
- Every Tuesday morning.
- O What do you do on Tuesday afternoons?
- I do my practical work then.
- 10 Work in pairs. Practise the dialogue.
- 11 Work in pairs. Discuss your own weekly schedule.

on Mondays = every Monday on Monday mornings = every Monday morning

# Materials

# 1 Materials testing

### Start here

- 1 Work in pairs. Read the instructions and answer the question.
  - Look at the helmet and rope. What are they made of?
  - Design tests for them. Use diagrams and the words in the box.

break nylon polycarbonate pull stretch strike

### Listening

- 2 Listen and answer the questions.
  - What material is the rope made of?
  - 2 What is the lecturer doing?
  - 3 Is the rope breaking?
- 3 Listen again and complete the dialogue.
  - Im (1) \_\_\_\_\_\_\_\_the rope. Im (2) \_\_\_\_\_\_\_it.
    Is it (3) \_\_\_\_\_\_?
  - O No, it (4) \_\_\_\_\_\_.



#### Language

This is the *present continuous* form of the verb. Use it to describe what is happening at the same time as you are speaking.

			am	pull	-ing	the rope.
		The rope	Isn't Is not	break	-ing	
What	are	you		do	land.	
	Is	the rope		break	-ing?	

### Vocabulary

4 Match the actions with the verbs in the box.

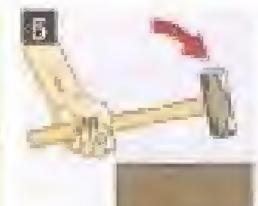
bend compress cut drop heat scratch stretch strike

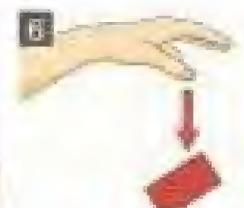
















### Language 5 The lecturer is testing other materials. Complete his description.

Now I (1) inheating (heat) this plastic to 100°C. Can you see?

It (2) \_\_\_\_\_\_\_ (not melt).

OK, now I (3) \_\_\_\_\_\_\_ (put) this helmet on the floor. And now the machine (4) \_\_\_\_\_\_\_ (drop) a 10 kg weight on it.

Right, now look at Dr Wilson. He (5) \_\_\_\_\_\_\_ (strike) the metal plate with a hammer. But the plate (6) \_\_\_\_\_\_\_ (not bend).

OK, now the jaws of the vice (7) \_\_\_\_\_\_\_ (compress) this plastic block. The block (8) \_\_\_\_\_\_\_ (not break).

Now Dr Wilson (9) \_\_\_\_\_\_ (hang) a weight of 500 kg from the ropes. But the ropes (10) \_\_\_\_\_\_ (not stretch).

Note the spelling changes:

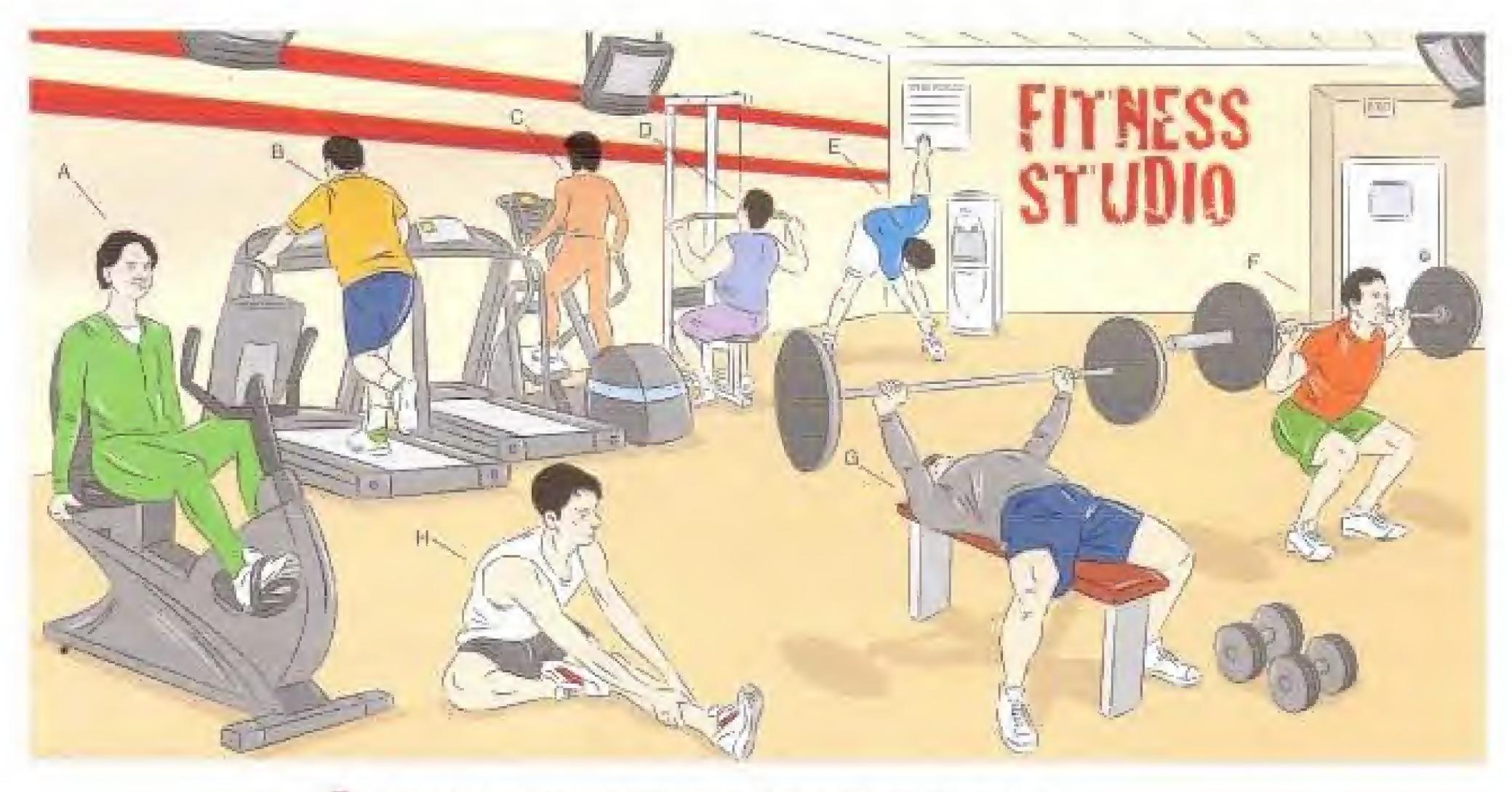
shike > striking

dropping

cut > cutting

# **Speaking** 6 What are the people in the gym doing? Describe this picture using the words in the box.

bend cycle hold lift pick-up pull push run sit stretch touch



- 7 Ask and answer questions about the picture in 6.
  - A: What's D doing? Is he pushing the bar up?
  - B: No, he isn't. He's pulling the bar down.
- Work in pairs. Guess the sport from the mime.

Student A: do the actions.

Student B: guess what Student A is doing. Then change roles.

- A: Watch me. (Mime a sport). What am I doing now?
- B: Are you diving?
- A: No. I'm not diving.
- B: I know, You're swimming.
- A: Yes, you're right. I'm swimming.

# 2 Properties

### Start here

Work in pairs. What are the most important properties of the materials in the box? Discuss with your partner.

graphite fibreglass concrete diamond ceramic

Example: You can't burn/melt/break/scratch/bend/cut it (easily).

### Vocabulary

What are these made of? Match the photos with these materials.

ceramic fibreglass graphite nylon aluminium rubber steel titanium polystyrene polycarbonate



### Speaking

Underline the stressed syllable.

- ny lon
- al u min i um
- graph ite
- pol y sty rene

- ce ram ic
- ti ta ni um
- poly car bon ate
- fi bre glass

(libreglass (BrE) = fiberglass (AmE) aluminium (BrE) = aluminum (AmE)

Listen and check your answers to 3. Say the words with the correct stress.

### Language

What	is 's	this helmet		It	is 's	made of	polycarbonate.	
What	are re	those ropes	made of?	They	are 're	TIREAURS OF	nylon.	

- 🚰 34 Listen and repeat.
  - What's this made of?
  - It's made of ceramic.
  - What are these made of?
  - They're made of polycarbonate.
- Work in pairs. Make similar questions and answers about the photos in 2.

### Vocabulary

- 7 Match the sentences.
  - 1 This material doesn't burn or melt if you heat it.
  - 2 This material doesn't break if you strike it or drop it.
  - 3 You can't bend this material.
  - 4 This material doesn't corrode if you put it in water.
  - 5 You can't scratch this material or cut it.
- 8 Match the words with their opposites.
  - 1 tough
- a) soft
- 2 hard
- b) heavy
- 3 rigid
- c) weak
- 4 strong
- d) brittle
- 5 light
- e) flexible

### Reading

9 Read the text and complete the table below.

This racing car is made from the latest hi-tech engineering materials. It's made from metals, alloys, ceramics, plastics and composites. Many materials in the car are light, but very strong.

The nose cone of the vehicle is made of strong, light fibreglass.

The spoiler and the wings are made from two materials. The inner core is light. It's made of polystyrene. The outer skin is hard and made of fibreglass.

The frame is light, but very tough and rigid. It's made of cromoly, a steel alloy.

The radiator is made of aluminium. The aluminium is coated with ceramic. These two materials are corrosion-resistant.

The engine and pistons are made of a light aluminium alloy. Each piston inside the engine is coated with a heat-resistant ceramic.

The wheels are made of a strong, light aluminium alloy. The tyres are made of a tough rubber composite.



an alloy is a mixture of two or metals a composite is a mixture of ctypes of material propless is a composite. It is a mixture of a plastic and a ceramic

BrE fire AmE bre

Part	What's it made o	17	What are its properties?
nose cone	(1)		(2)
spoiler and wings	coated with (3)		(4)
wheels	(5)	alloy	(6)
tyres	( <b>7</b> ° )	composite	(8)
pistons	coated with (9)		(10)
frame	(11)		(12)
radiator	(13)		(14)

lt's rigid.

It's hard.

it's tough.

It's heat-

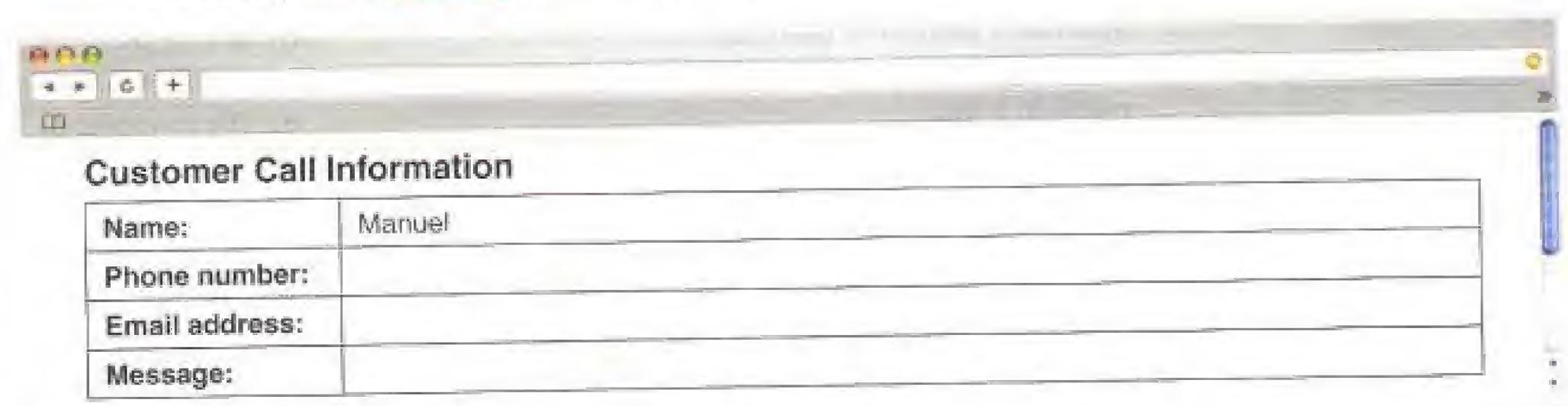
resistant.

resistant.

It's corrosion-

# 3 Buying

Listening 1 Listen and complete the customer call form.



2 Listen and write the correct email and web addresses.

W	hen you hear this	write this
_	waleed at sports dot com	waleed@sports.com
2	adam at city dot co dot U, K	
3	theo walcott, that's T-H-E-O then W-A-L-C-O-T-T at goalleast, that's G-O-A-L-F-E-A-S-T all one word dot com	
4	C dot ronaldo, that's R-O-N-A-L-D-O at back-of-the-net, that's B-A-C-K dash O-F dash T-H-E dot net	
5	www.dot.toyota, that's T-O-Y-Q-T-A dot.com forward slash customer dash support	
6	www.dot.orascom, that's O-R-A-S-C-O-M dot.com.dot.E-G forward slash sales underscore one	

Speaking 3 Work in pairs. Dictate the addresses to your partner.

Student A. Turn to page 66. Student B. Turn to page 67.

Listening

- 4 Listen to this phone conversation and complete the questions.
  - What's your surname, please?
  - O It's Lint.
  - Could you (1) \_\_\_\_\_ that, please?
  - O Lint.
  - Could you (2) \_\_\_\_\_ that, please?
  - O L-I-N-T.
  - (3) \_\_\_\_\_ T or D?
  - O It's T. T for teacher.
  - Thanks. And what's the product number?
  - O It's 17-305.
  - (4) \_\_\_\_\_\_ 17 or 70?
  - O Teen. Seventeen. One seven.
  - Right. Thanks.

Speaking 5 Practise the phone call in pairs. Then change roles.

Never put a stress on the -ly in numbers like thirty, forty, willy and so on.
Tip, say seventy but seventeen to make the difference clear.

Work in pairs. Buy sports equipment over the telephone. Task

Student A. Turn to page 67.

#### Student B:

- You are the customer. Circle three items you would like to buy, and circle the features you want (size, colour, material), and the price. Then phone up the shop and place your order. You can either make up details (e.g. names, phone numbers, etc.) or use your own.
- Then change roles. You are now the sales person in the sports shop. Ask Student A questions and complete this order form.



na = number

 $\# = \phi umber$ 

- What's your name/phone number/email address?
- Could you spell/repeat. that, please? Is that sixteen or sixty?
- What's the product name/ number?
- What colour/size/material would you like/do you need?
- Do you want to pay in dollars (S), sterling (E) or euros (€)?
- How many would you like/do you need?

Order			
Email address		7	
Phone no.			
Name			

#### Listen to three telephone calls. Mike (M) is phoning his friend John (J). Social English

	1	2	3
	Hello?	Hello?	Hello. John Davis here.
M	Hello, Is that John?	Hello. Is that John?	Oh hi, John. This is Mike.
ل	Yes?	Yes. Is that Mike?	Hi, Mike.
ul	It's Mike.	Yes, it's me. Hi. How are you?	Hi. How are things?
J	Oh hi, Mike.	Fine, thanks. How about you?	Great, thanks. How are you?
M	Hi. How are you?	I'm fine. (Begin your call).	Good. (Begin your call).
	OK, thanks. How are you?		
M	Fine. (Begin your call).		

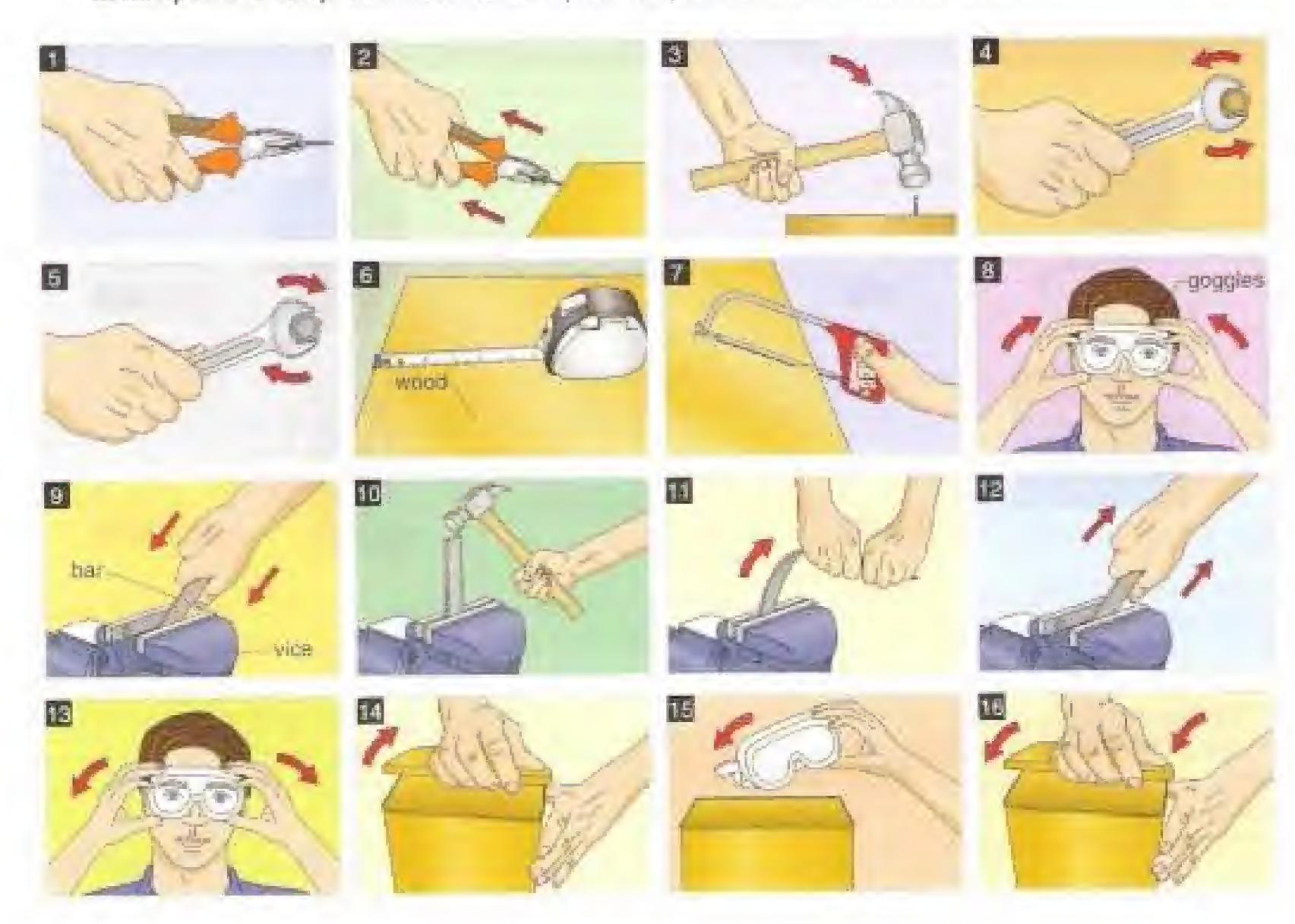
Work in pairs. Practise short phone calls, using your own names.

# Review Unit C

1 Look at the pictures and give instructions with the words in the box.

bend close cut drive in grip loosen measure open pull out put put on strike take take off tighten use

Examples: 1 Grip the nail. Use a pair of pliers. 2 Pull out the nail.



2 Say what is happening in the pictures in 1.

Example: 1 He's gripping the nail. He's using a pair of pliers.

- 3 Correct the mistakes in these sentences.
  - 1 Water boils at 32°F. (freeze)
    Water doesn't boil at 32°F. It freezes
  - 2 Hot water sinks to the bottom of a tank. (rise / top)
  - 3 Cool air rises to the top of a room. (sink)
  - 4 Hot air sinks to the bottom of a room. (stay / top)
  - 5 The Sun's rays cool the water in the solar panel. (heat)

	implete the dialogue with the rm of the verbs in brackets.		
•	How does the thermosipho (1) (work)?		
0	Well, the cold water (2)		
	(enter) the system through t	the inlet.	*
	The water pressure (3)	tank	
	(push) the water around the	e system.	
8	So how (4) (do	) the inlet	
	water (5) (bec	ome) hot?	
0	lt (6) (flow) int		
	the panel and the sun's rays		
	(7) (heat) it. Ti	he warm outlet	valv
	water (8) (rise)	) to the	
	top of the panel and it (9)_	(pass) from the panel into the to	ank.
		ank (11) (have) a heater?	
		not). The hot water (13) (stay)	at the
		(open) the value, the hot water	
ld	(15) (flow) <i>frot</i> entify the equipment from the	n the top of the tank to the outlet. ne description.	
1	entify the equipment from the	ne description.  colar panel thermostat  e Sun into heat or electricity.	
	entify the equipment from the able fan pump radiator so the lt converts energy from the lt pushes water around a v	ne description.  colar panel thermostat  e Sun into heat or electricity.  vater supply system, or around a car engin	ie.
1 2 3	entify the equipment from the able fan pump radiator so the lt converts energy from the lt pushes water around a water blows cold air onto a car	ne description.  colar panel thermostat  e Sun into heat or electricity.	
1 2 3 4	entify the equipment from the able fan pump radiator so the lt converts energy from the lt pushes water around a walt blows cold air onto a car lt controls the temperature	ne description.  Solar panel thermostal  e Sun into heat or electricity.  vater supply system, or around a car engineradiator and cools the water inside it.	
1 2 3 4 Th	entify the equipment from the able fan pump radiator so the fan pump radiator so the formation of the format	ne description.  Solar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car engine  r radiator and cools the water inside it.  e of water or air in a heating or cooling sys	stem.
1 2 3 4 Th	entify the equipment from the able fan pump radiator so the converts energy from the lt pushes water around a walt blows cold air onto a care it controls the temperature tere's a problem with the for I impressing (press) the acceptaster.	ne description.  colar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car enging  radiator and cools the water inside it.  e of water or air in a heating or cooling system  rklift truck. Say what's going wrong.	stem.
1 2 3 4 Th	entify the equipment from the able fan pump radiator so the converts energy from the lt pushes water around a walt blows cold air onto a care it controls the temperature tere's a problem with the for a limpressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system in the system of t	stem.
1 2 3 4 Th	entify the equipment from the able fan pump radiator so the converts energy from the It pushes water around a valid blows cold air onto a care it controls the temperature tere's a problem with the for I impressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car enging  radiator and cools the water inside it.  e of water or air in a heating or cooling system  rklift truck. Say what's going wrong.  elerator pedal, but the truck isn't going (no	tem.
1 2 3 4	entify the equipment from the able fan pump radiator so the converts energy from the strain of the pushes water around a walt blows cold air onto a care it controls the temperature tere's a problem with the formula strain (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  water supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system of water or air in a heating or cooling system.  elerator pedal, but the truck isn't going (no pedal) the lever back, but the forks of rise).	tem.
1 2 3 4	entify the equipment from the able fan pump radiator so the converts energy from the It pushes water around a volt blows cold air onto a care it controls the temperature tere's a problem with the for I impressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system of water or air in a heating or cooling system.  elerator pedal, but the truck isn't going (no pedal, but the truck isn't going (no pedal) the lever back, but the forks of rise).  — (push down) the brake pedal, but the truck isn't going (no pedal).	tem.
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1 2 3 4 Th 2 3	entify the equipment from the able fan pump radiator so the converts energy from the state of the pushes water around a valid blows cold air onto a care it controls the temperature sere's a problem with the for the pressing (press) the acceptance.  I mpressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  vater supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system.  celerator pedal, but the truck isn't going (no pedal) the lever back, but the forks of rise).  — (pull) the lever back, but the forks of rise).  — (push down) the brake pedal, but the truct slow).  slide) the lever forwards, but the forks	tem.
1 2 3 4 Tt 1 2 3	entify the equipment from the able fan pump radiator so It converts energy from the It pushes water around a volt blows cold air onto a car It controls the temperature sere's a problem with the for I impressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  water supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system, or cooling sy	tem.
1 2 3 4 Th	entify the equipment from the able fan pump radiator so It converts energy from the It pushes water around a volt blows cold air onto a car It controls the temperature sere's a problem with the for I impressing (press) the acceptance.  He	ne description.  colar panel—thermostat  e Sun into heat or electricity.  water supply system, or around a car enging radiator and cools the water inside it.  e of water or air in a heating or cooling system.  Exhibit truck. Say what's going wrong.  Selerator pedal, but the truck isn't going (not perfectly in the lever back, but the forks of rise).  — (pull) the lever back, but the forks of slow).  I slide the lever forwards, but the forks of tilt) upwards.  — (pull) the direction lever backwards, but	tem.

- 7 Complete the sentences with bend or break and other words.
  1 Polyester is a tough material. You can't \_\_\_\_\_\_\_ it easily.
  2 Concrete is a rigid material. It doesn't \_\_\_\_\_\_\_ easily.
  3 Polycarbonate is a hard material. It \_\_\_\_\_\_\_
  4 This glass is brittle. You \_\_\_\_\_\_\_
  5 These plastic rulers are very flexible. They \_\_\_\_\_\_\_
  8 Draw a line from each word to its opposite.
- rise enter into heavy strong
  go in inlet push light pull
  sink open out of tough
  sink to outlet soft
  leave weak brittle

do down from rigid

do up

- I Sunglasses are made of this material. It's a hard and tough plastic.
- 2 You can stretch this material and you can bend it, but it doesn't break.
- 3 You can heat this material to a high temperature, but it doesn't burn or melt. They use it in spark plugs.
- 4 Parts of aeroplanes are made of this material. It's a strong, light, corrosion-resistant metal.

- 11 Make dialogues about the parts of a racing car.
  - 1 nose cone / fibreglass / strong and light
  - 2 pistons / aluminium alloy / light and corrosion-resistant
  - 3 frame / cromoly / tough and rigid
  - 4 tyres / rubber composite / tough
  - 5 radiator / aluminium and ceramic / corrosion-resistant
  - 6 outer skin of spoiler / fibreglass / hard
  - A: What's/What are the ... made of?
  - B: It's/They're made of ....
  - A: Why do they/we/you use ...?
  - B: Because it's ....
- 12 Complete the text with the correct form of the verbs in brackets.

This is how you test the properties of the material. You put the material into the multi-test machine. Then the machine does four tests on it. In the first test, a hammer (1) \_\_\_\_\_\_\_ (strike) the material with a 50 kg weight. In the second test, two pairs of jaws (2) \_\_\_\_\_\_ (pull) the material with a weight of 80 kg. In the third test, a heavy weight of 100 kg (3) \_\_\_\_\_\_ (press) the material down. In the fourth test, two sharp knives (4) \_\_\_\_\_\_ (scratch) the material with weights of 10 and 20 kg.

OK, now I'm demonstrating the four tests in action. Watch carefully. Here's the first test. The hammer (5) \_\_\_\_\_\_\_ (strike) the bar. Can you see? The bar isn't breaking. Here's the second test. It's starting now. The jaws (6) \_\_\_\_\_\_ (pull) the material. Can you see? The material (7) \_\_\_\_\_\_ (not stretch). Now the third test is taking place. The heavy weight (8) \_\_\_\_\_\_ (press) the material down. Can you see that? The material (9) \_\_\_\_\_\_ (not break). And now here's the fourth and final test. The knives (10) \_\_\_\_\_\_ (scratch) the material.

Projects 13 Find out what these word parts mean. Then find other words with the same word part.

Word part	Meaning of word part	Example of word	Meaning of word
sol-		1 solar	1
		2	2
poly-		1 polytechnic	
		2	2

14 Find out about materials you use in your industry. Make your own table and complete it.

Example:

Application	Material	Property
Wing parts	Aluminium alloys	Light, strong, corrosion-resistant